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HEAD INJURIES MARKED BY INTRACRANIAL TENSION.*

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As may be inferred from the title, it is not my intention to go into a systematic discussion of cranial injuries, but rather to devote the time allotted to my paper to a consideration of the effects of trauma on the cranial contents, manifested by the development of intracranial pressure or tension.

When an individual has suffered injury to the head, it is often associated with palpable fracture of the skull, but it not infrequently happens that one is put into great jeopardy with no evidence whatever of bone injury. A fracture is to be regarded as an evidence of the severity of the injury rather than as the damage to which our attention should be exclusively or mainly directed. The importance of bone injury is so great that one of our first endeavors should be to ascertain the presence of a fracture. Palpation and inspection generally will suffice, but occasionally exploratory incision of the scalp will be necessary, as long ago suggested by Doctor John B. Roberts, to locate what may prove to be a serious fracture. Thus we shall get by the location and character of the injury a more correct measure of the man's danger. So true is this, that an X-ray examination of the skull should be a part of our routine examination of these cases, but we must not be satisfied with the determination of a fracture in either of these ways, and this point I wish especially to stress, for it will occasionally be observed that a man with the evidence of a serious fracture will fare better in the end, for reasons hereafter to appear, than one with no evidence whatever of bone damage. Here now appears the crux of of the situation. I lay down, then, the proposition that a man's danger is directly proportional to the extent and rate of development of intracranial tension.

In order to make clear the argument it will, perhaps, not be out of place to give first some attention to certain anatomical and physiological considerations connected with the development of intracranial tension.

The first Cameron Lecture delivered by Harvey Cushing[1] before the University of Edinburgh last October was devoted to the study of the third circulation and its channels, in which he discussed the origin, relations, movements and functions of the cerebrospinal fluid. This fluid shows, like the lymphatic circulation, not a true movement in a circle, but nevertheless a continual movement "in a definite direction, through a highly specialized pathway, that cuts across the blood circle, to envelop an organ in which a lymphatic apparatus of the usual type does not exist." This fluid, originating in the choroid plexuses, moves, as stated in definite channels, through the subarachnoid spaces, filling the various numerous spaces at the base known as cisterns, washing the surface of the brain

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and finally continuing down the spinal canal.

According to the doctrine known as the Monroe-Kellie, which involves certain principles of physics relative to the flow of fluids through an incompressible chamber, the bulk made of the three elements, nervous tissue, blood and fluid, must always remain the same. "Any increase of blood volume, for example, can only take place at the expense of one of the other elements, and conversely a diminished blood volume must be compensated for either by an expansion of the brain or by an increase of cerebrospinal fluid." Thus can we explain cerebral oedema, "for the brain, owing to its sponge-like structure is more capable than any other of the body tissues of taking up fluids, with an enormous and rapid increase in bulk. This led Weed (1919) to make "the discovery that prompt changes in brain volume ensue upon the intravenous injection of hypertonic and hypotonic fluids." To this important discovery we shall return later. We have seen how this fluid comes from the choroid plexuses; it remains to say that it makes its exit through the processes, tufts or villi which bulge into the venous sinuses everywhere in the skull. Through these villi the fluid of the subarachnoid spaces is absorbed and disappears into the blood circulation.

It is important to bear in mind that the subarachnoid space is entirely distinct from the subdural space, which fact would urge that the dura in operation for extradural hemorrhage should always be opened (in the absence of infection) in order to drain the subdural space of blood which left would give rise to the serious remote after-effects of a subdural hematoma—Naffziger,[12] Cushing and others.

Further, the brain is not, like other organs, suspended by ligaments, but is supported from below by the tentorium and the cushions of cerebrospinal fluid on which it rests and which serve to break the force of blows from without.

Now, if intracranial tension is not speedily relieved, soon the medulla becomes anemic, marked by Cheyne-Stokes respiration and other signs of medullary involvement.

This tension may be diminished in several ways:

1. By bleeding.
2. By intravenous injection of concentrated solution of salts.
3. By rectal or stomach ingestion of these salts.
4. By tapping of ventricles or cisterns.
5. By spinal lumbar puncture.
6. By subtemporal decompression.

The relief by bleeding would only very exceptionally be resorted to as has been done by Cushing in certain apoplexies. The dehydration method will be discussed later on. Rawling believes venesection useful. The bleeding should be continued until the pulse becomes soft, frequent and compressible. "The operation frequently turns the scale in favor of the patient."

I shall first discuss lumbar puncture.

While all investigations admit the continuity of the cerebro-spinal subarachnoid spaces, there is considerable difference of opinion regarding the efficacy and the safety of spinal puncture. Those who favor it and practice it as a diagnostic and therapeutic measure maintain the following (Jackson[3]):

1. That in most acute injuries of the brain the cerebrospinal fluid pressure taken at the lumbar region is a fair index of the severity of the intracranial lesion, and a dependable prognosis may be based upon it.

2. Classification of injuries based on the lumbar puncture alone is more useful than that into concussion, contusion and laceration and compression.

3. Pathogenesis of acute injuries indicates that the principal effect of oedema and hemorrhage is to block absorption by

cumulation of fluid in the basal cisterns below the tentorium and in the lateral ventricles, pressing up the brain and setting up cortical, as well as medullary, anemia.

4. This may be prevented by lumbar puncture as often as may be needed.

Carter,[4] of Cincinnati, in a most satisfying article, published in February Annals of Surgery, gives his whole-hearted support to spinal puncture, and suggests a classification based on spinal manometric readings:

1. Cases with definite evidence of skull fracture but normal pressure. If the pressure reads normal, no fluid is withdrawn.

2. Cases with evidence of intracranial tension, severe or moderate, diminishing as the punctures are repeated until they show normal reading. Spinal puncture may obviate many decompression operations.

3. Cases with initial high pressure readings. Subsequent punctures show no drop in pressure or an increase. This class calls for early decompression.

4. Cases with high initial spinal pressure where subsequent taps reveal low pressure but no amelioration. Here both spinal drainage and subtemporal decompression fail.

5. Cases with marked evidence of pressure with clear spinal fluid small in amount. Here the suspicion of extradural hemorrhage is strong, and spinal drainage may do harm. Localizing signs may here call for decompression.

J. B. Ayer[5] is very clear. "Numbers of workers," he says, "testify to the value of the method as an all-important guide in the reduction of intracranial pressure." "By the slow withdrawal of fluid to normal or nearly normal pressure, it has been found possible to postpone operation beyond the period of shock, and in some cases even to dispense with operation." Jackson[3] in 1922 thinks Cushing's undue stress on the value of blood-pressure indications has done harm by diverting attention from spinal puncture. The symptoms usually depended on, high blood pressure, slow pulse and stertorous respiration, are really late symptoms, due to medullary pressure. To forestall the danger, the spinal pressure manometer anticipates this by many hours. Spinal puncture relieves medullary pressure, being subtentorial, more distinctly than subtemporal decompression which is supratentorial. Jackson's views were derived from a clinical study of one hundred human cases, besides experiments on dogs.

He quotes from Quincke,[3] the real father of lumbar puncture, who writes in 1905 as follows: "In acute brain injuries the symptoms often fail us. * * * It is in these cases that *the estimation of the cerebrospinal fluid pressure* is of most importance and the best results gotten by lumbar drainage." Jackson believes that with the spinal manometer we can get much earlier information and institute much more effective treatment by the spinal method than by dependence on symptoms.

Bower[6] is of the same opinion. "Lumbar puncture," he says, "with spinal fluid pressure observation is essential to proper management." In certain cases operation may be thus avoided. It is important in borderline cases, because there may be increased intracranial pressure without increase in general blood pressure." We have already referred to B. N. Carter's[4] views in agreement with this.

Rand and Nielsen[7] in a study of 175 cases with fractures of the skull used it in all cases where something more than concussion was suspected and found bloody cerebrospinal fluid in 85% of the cases. They found the spinal puncture of more value diagnostically than examination of the eye grounds in the first few hours. Therapeutically spinal puncture they think very valuable.

Maclaire[8] thinks the mercurial manometer and its interpretation absolutely essential to determine intracranial pressure. He treats oedema of brain and intracranial hemorrhage (not extra-dural)

by dehydration and lumbar puncture. These failing, subtemporal or suboccipital decompression will be indicated. Donald Munroe[9] is heartily in favor of it after a carefully planned comparative study of cases treated on three services in Boston City Hospital by three different plans. The cases on his service were 99. Of these the mortality was 14%. Sixty of them were treated by lumbar puncture alone with a mortality of 12%. The comparative result on the three services during one year was "lower mortality following puncture than by any other method." Sharpe[26] thinks it valuable as a diagnostic measure but urges that not more than 5 cc. should be drawn, simply to get the pressure. He is chary of its use therapeutically, although, as Bower says, of over 1600 punctures, he had only three deaths in cases, done by internes, two being tumor cases and one internal hydrocephalus. By repeated lumbar punctures and ophthalmoscopic examination, disastrous intracranial pressure may be anticipated and timely subtemporal decompression and cranial drainage turn the tide. He thinks the use of repeated puncture of the cisterna magna will be of great value in selected cases.

Thus it would appear there is strong evidence in favor of lumbar puncture as a therapeutic as well as diagnostic measure; there are, however, some discordant notes to be found in the literature. Thus, Ernest Sachs[10] speaks of it as unnecessary and unsafe. "I have seen," he says, "two deaths from puncture in fracture cases and there are many unrecorded cases that I have heard of." He repeats these statements again in J. A. M. A. 81:2159.[10] He sees no necessity for it even as a diagnostic aid. He has "seen the same thing happen after lumbar puncture in head injuries that has happened so frequently from lumbar puncture in brain tumor cases—sudden death," and mentions two. This seems somewhat inconsistent when we note further that he says frequently in a decompression operation the intracranial tension is so great that if the ventricles are not tapped, there would be a sudden protrusion and rupture of the cortex. Sachs is driven to ventricular puncture because he has just as little use for dehydration methods. Jackson would use spinal puncture in just such junctures, while Weaver,[21] Dowman,[20] Foley[19] and others would resort to intravenous or gastrointestinal dehydration with salt solutions. We shall speak of this directly. Fürbinger in 1897 sounded a warning in tumor cases and Archibald[11] (American Practice of Surgery, Vol. 5:141) gives the notes of a case where he felt that the lumbar puncture was the precipitating cause of death. Case of a jockey with B. P. 190:15 cc. withdrawn by lumbar puncture, pulse immediately failed and patient sank. At autopsy a large intracranial clot was found. This case does not conclusively place the onus on spinal puncture. If there was a mistake it was perhaps in drawing the fluid too rapidly and too much. The post mortem notes do not mention descent of the bulb and cerebellum into the foramen. Rawling[2] writes: "In spite of the apparent advantage of this method, it must, I think be acknowledged that lumbar puncture is of but little use in reducing intracranial pressure." "This statement is at variance with the opinion of other surgeons." He thinks it useful in diagnosis, but is doubtful if it assists prognosis.

Naffziger[12] calls attention to those cases where the fluid accumulation is subdural and not subarachnoid, probably due to a tear in the arachnoid membrane. Spinal drainage palliates such cases only by diminishing the amount of fluid to flow over through the rent. The real indication is to do a decompression with opening of the dura and drainage. This condition corresponds to that of cases in Dowman and Weaver's Class E,[21] which they treat by intravenous or gastrointestinal concentrated salt solution.

Much of this discrepancy of view is due perhaps largely to lack of care in doing lumbar puncture. Da Costa,[13] for instance, states the normal pressure, but does not

give the position of the patient. Others condemn it without using a manometer. Estimation by counting of drops from the needle, Ayers condemns very severely. Many times he has seen it come by spurts when the manometer indicates really low pressure and vice versa. He calls attention to certain pitfalls; as coughing, sneezing, holding breath, grunting and even bending or constriction of neck, will raise the pressure. Queckenstedt's phenomenon[30] (1916) whereby jugular pressure causes increased flow from the needle, indicates how easily the flow is altered. Landon[15] in 1917 lays down specific directions. The patient should be in the left horizontal position. The pressure normally will vary 6 to 10 mm. HG. with an average of 8 mm., whereas in the sitting position, it may go as high as 35 mm. This is, therefore, of great importance.

H. M. Green[32] lays great stress on the fineness of the needle, urging one of gage 22 as best adapted to prevent trauma.

Finally, Levison,[16] in his excellent treatise on the cerebrospinal fluid (1923) says there are few contraindications to spinal puncture; while less safe in brain tumors even here it may be done if the pulse, respiration and reflexes are watched. "Lumbar puncture when indicated should not be feared on account of complications." The weight of evidence is in favor of lumbar puncture as an efficient diagnostic and therapeutic agent, without serious danger if properly carried out.

THE EFFECTS OF DEHYDRATION.

Weed and McKibben[17] under Cushing's stimulating influence showed experimentally (1919) that the pressure of the cerebrospinal fluid and the bulk of the brain can be affected by the intravenous use of certain salts. Foley and Putnam[18] have shown that these concentrated salt solutions given by stomach or intestine will have the same effect although more slowly. Cushing and Foley showed decided influence of ingestion of these salts, and Foley[19] has discussed the clinical uses of concentrated salts in increased intracranial tension, showing by spinal puncture in the reduction of cranial hernias undoubted effects. Dowman[20] and Weaver[21] both commend in Class E of their classification the administration of ½ ounce of saturated solution, Mg SO_4, every two hours for forty-eight hours. Dowman speaks of the fluid in these cases as being subdural and not subarachnoid, cases which Naffziger says can only be partially relieved by spinal puncture, the only relief obtained being by drawing off through the spinal needle fluid which might pour through a rent in the arachnoid into the subdural space. These cases he thinks best treated by decompression and subdural drainage.

Fay[23] has gone into an elaborate investigation of the comparative value of hypertonic chloride solutions and saturated Magn. Sulph. Solutions, finding the latter much more efficient than the chloride of sodium, and reports that by its use by ingestion or enema they have in Frazier's[22] Clinic almost abandoned subtemporal decompression. Yet Morrissey,[24] after an extensive study of magnesium sulph. pronounces it valueless as a decompressive agent. "Cerebral dehydration is probably accomplished to a very slight extent by magnesium sulphate, but the effect of this drug is inadequate and should not be seriously relied on for the reduction of intracranial pressure." But "hypertonic salt solution intravenously has an effective action in reducing intracranial pressure." Spinal puncture, he thinks, removes fluid and accomplishes reduction of pressure or bodily functions as a whole. He believes that no one method of treatment should be used exclusively. Some require subtemporal decompression, while in others spinal punctures or hypertonic dehydration may be best. Grant[28] testifies to the same effect.

The first clinical use of hypertonic solutions was reported by Haden[27] in September, 1919. He used 25% solution in a case of meningitis, but 40% may be used with

impunity. He refers to the report of Olitzky of an epidemic of meningitis in China in which, in the absence of an adequate supply of immune serum, he used with decided effect lumbar punctures. In this disease, it is desirable to replace fluid removed by immune serum, which again raises the pressure. Here the intravenous use of hypertonic fluids will render valuable aid.

Max M. Peet[25] discusses the relative values of the various salts used intravenously. It has been shown that identical results from hypertonic solutions of sodium chloride, Ringer's solution and glucose, are to be obtained. Hypertonic salt solution gives its maximum effect in 30 to 35 minutes, then a return to normal and afterwards a continuous rise. Ward and McKibben thought saline toxic for some animals; it seems to upset the chloride balances. While Ringer's solution has a shorter effective period than glucose, and there is also a terminal intracranial hypertension. Glucose is especially valuable in shock, and can, therefore, be used earlier to reduce intracranial tension. Since Ringer's acts more rapidily Peet has preferred it when there is need for haste and there is no shock. It is, hence, preferable for reducing brain volume in cranial operations. Glucose may be used with advantage after Ringer's to obviate the terminal rise of pressure. Besides it furnishes more calories. Glucose has the following advantages—prolonged action, no terminal rise in tension, increased volume in shock, control of acidosis and prolonged action and nutrient.

Hubert S. Howe,[26] after reviewing the work of previous investigations, comes to the conclusion: "That dextrose is the only substance of this group, which is non-toxic and produces a satisfactory fall in intracranial pressure." He has never seen it produce the slightest bad effect on respiration or circulation no matter in what strength or how rapidly given, while sodium chloride is distinctly toxic unless given slowly.

They should all be given slowly, especially Ringer's which should not be given faster than 3 cc. per minute. The best way to give it would be by the intravenous drip recently popularized by Matas[39] and others.[40]

Fisher[35] and Mensing[36] and Snell[39] have shown good effects of insulin added to the glucose in the treatment of shock, by increasing the carbohydrate combustion. It is well worth considering in the management of shock in brain injury.

The essential mechanism of this action is osmotic pressure and diffusibility. Where dehydration is desired, magnesium sulphate is preferred by some, by rectal or oral administration as used by Fay in Frazier's Clinic. This has been well shown by Foley[19] in a variety of conditions marked by intracranial tension, such as bulging hernias and preparatory to brain operations, in meningitis, etc. In certain cases of great intracranial tension where it is desirable to do a spnal puncture, a preliminary intravenous injection of a hypertonic salt solution will obviate danger of jamming down of the brain.

Improvement of medullary compression as shown by disappearance of Cheyne-Stokes respiration on introduction of hypertonic solution intravenously is an illustration of its value. This Cushing[1] calls attention to in his Cameron lectures before the University of Edinburgh last year. It shows in a conspicucus manner the powerful osmotic influence of concentrated solutions in dehydration of the brain and medulla.

I have thus, I believe, demonstrated that intracranial tension demands our most careful attention and I have shown the simple means at hand for relieving and controlling this and thus preventing untimely and irreparable damage to the great citadel of life.

DECOMPRESSION.

The last resort is decompression. As shown in Frazier's Clinic the simpler

measures above outlined have been so effective that the operation of decompression has almost been abandoned. Rand and Nielsen[7] did decompression in only 15% of their cases, yet 85% of these showed blood on spinal puncture. B. N. Carter[4] decompresses those cases where the intracranial tension is increasing or remains high in spite of spinal puncture. Sachs[10] decompresses if patient continues unconscious or semi-conscious, placing no reliance on spinal puncture, but rather inconsistently does not drain the wound. Sharpe[26] operated in about 30% of cases, depending on the response to spinal drainage. Two stages contraindicate operation, that of shock and the terminal one of medullary oedema, or decompensation.

I might go on quoting from the authorities the varying views expressed in literature, but it might prove only tedious and only serve the purpose of showing the uncertain state of management of these conditions. I would prefer to state the conclusions which my study of the more recent literature seems to justify:

1. No operation should be done in the state of shock. This must first be overcome by the usual methods against shock. However, one of the measures calculated to help shock is the intravenous use of strong solutions of glucose as first practiced by Haden to relieve intracranial tension.

2. Until shock is subdued, the time may be profitably spent in getting the history from witnesses and taking pulse, respiration and temperature at intervals, with the blood-pressure.

3. When the shock is relieved then a spinal puncture is made to get the intracranial pressure, always in a horizontal position and after waiting a sufficient time for adjustment before reading the manometer. The manometer is essential.

4. If the reading is moderately high the fluid is allowed to flow until the reading shows normal pressure. This is to be repeated at intervals of 24 hours or less in urgent cases.

5. If the reading shows very high pressure, enough fluid is withdrawn to bring the pressure to about one-half at the first puncture.

6. If the case is urgent the lumbar puncture may be aided and protected by an intravenous injection of a 25 to 40% solution of glucose. Danger of medullary jamming is thereby lessened.

7. If at the second puncture the response is satisfactory, the case should continue to be treated by lumbar puncture in conjunction with magnesium sulphate by rectum, preferably, or by stomach ingestion through a duodenal tube.

8. Should these measures fail to relieve the cerebral tension then subtemporal decompression should be done.

9. Subtemporal decompression should always be assisted by drainage unless there is infection. It seems not logical to do a decompression without draining (for not longer than 48 hours) the subtemporal space. Sachs drains in no instance, as he considers it dangerous.

10. In extra or epidural hemorrhage the dura should also be opened if there are other signs of intracranial tension, unless the wound is septic.

11. Cushing, Putnam and many others have shown the bad effects of leaving a subdural hemorrhage, which cannot be drained by lumbar puncture (Naffziger).

12. In bad cases of tension it may be advisable to puncture the ventricle on the side of the decompression.

13. It must be remembered that an intravenous saline or glucose injection will sometimes revive a man already showing Cheyne-Stokes respiration.

14. There is no reason why spinal puncture should not be done in any case where it is indicated. If it be done slowly, watch-

ing the pulse and respiration, it may easily be discontinued before trouble comes.

15. Should there be signs of danger after withdrawal of fluid, the danger may be overcome by an intravenous injection of 30 to 50 cc. of a 25% solution of salt or glucose, which should always be at hand for such emergency.

I should like again to urge that these cases of brain injury should rather be classified on a basis of intracranial tension than on a basis of fracture. This has been done by Stewart Rodman and Neubauer.[29]

Group 1. No increase in intracranial tension.

2. Moderate increase.

3. Marked increase.

After the stage of shock is passed the following observations can be made to determine the group.

A. General examination with neurological findings.

B. Temperature, pulse and respiration with blood-pressure every four hours.

C. X-ray of skull.

D. Spinal puncture with manometer readings.

Group 1 will include those cases with normal or nearly normal blood-pressure and a spinal pressure of 8 to 10 mm. Hg. To these may be added normal temperature, pulse and respiration, primary unconsciousness, succeeded by headache and dizziness.

Treatment: Rest in bed (4 or 5 days). Ice cap to head. Sedatives as needed.

Group 2. Cases showing manometer reading 10 to 18 mm. Hg., moderate rise in blood pressure, temperature and pulse rate and normal respiration. Primary unconsciousness, followed by dazing and headache, with later some mild confusion or delirium. Eye grounds will show some retinal venous congestion.

Treatment: Rest in bed—ice cap. Elevation of head of bed with therapeutic spinal puncture, drawing 10 to 25 cc. as often as necessary to reduce the reading to 8 to 10 mm. Hg., and the intravenous injection of hypertonic saline or Fay's magnesium sulphate by rectum.

They think fully 70% of cases will fall into these two groups.

Group 3 will include those cases showing a spinal pressure above 18 mm. Hg. with increased blood pressure, falling as the stage progresses. Pulse pressure is more valuable than systolic or diastolic readings; when the pulse pressure equals the pulse rate a good single indication for operation exists. These cases show a normal or slightly elevated temperature until medullary oedema supervenes when hyperpyrexia begins. The pulse becomes slower and bounding until it becomes subnormal as pressure advances. Stupor and coma close the scene. The eye grounds show congestion and paling.

The group calls for subtemporal decompression with drainage.

Scalp wounds, fractures of the cranium, intracranial hemorrhage, penetration of foreign bodies and localizing pressures are to be regarded as complications and treated according to the operative indications.

Such a classification would put treatment on a rational basis and the cases could be more intelligently selected for special plans of treatment.

Finally, there is no reason why we should confine ourselves to one method of reducing intracranial pressure, when a combination might give better results.

If I have succeeded in indicating in this paper a rational method of management of

these cases of head injuries, I shall feel fully repaid for my hunt through the rather confusing views found in the literature.

REFERENCES.

1. Cushing, Harvey. Cameron Lecture, Lancet, October, 1925.
2. Rawling. Surgery of the Skull and Brain, 1912.
3. Jackson, Harry. S. G. O. 34:494-508, April, 1922.
4. Carter, B. N. Annals of Surgery, February, 1926.
5. Ayer, J. B. Archiv. Neurol and Psych. 14:440, October, 1925.
6. Bower. Ann Surgery 78:459, October, 1923.
7. Rand & Nielson. Arch. Surg. 11:455, September, 1925.
8. Maclaire. J. A. M. A. 86, March 6, 1926.
9. Donald Monroe. Bost. M. & S. J. 193:1187-1189, December 24, 1925.
10. Ernest Sachs. Surg. Clinics of North America, December, 1922, 2579, and J. A. M. A. 81:2159.
11. American Practice of Surgery, Vol. 5:141 (Buck & Bryant).
12. Naffziger. Archiv. Neurol and Psych. 12:411-418, and J. A. M. A. 82:2751.
13. Cushing & Putnam. Subdural Hematoma, Archives of Surgery, 11:329-393, September, 1925.
14. Da Costa, J. C. Surgery, Ninth Ed.
15. Landon. J. A. M. A. 68:1540, May 26, 1917.
16. Levinson. The Cerebospinal Fluid.
17. Weed & McKibben. Am. J. Physiol. 48:512, May, 1919.
18. Foley & Putnam. Am. J. Physiol. 53:464, October, 1920.
19. Foley. S. G. & O., 33:126, August, 1921.
20. Dowman. J. A. M. A. 79:2212, December 30, 1922, and South. M. J. 18:351-255, May, 1925, Dec. 20, 1922.
21. Weaver. S. G. & O. 41:347, September, 1925.
22. Frazier. Prog. Med., March, 1926.
23. Fay. J. A. M. A. 80:1445; J. A. M. A. 82:766; J. A. M. A. 84:1261.
24. Morrissey. Arch. Surg. 11:778, November, 1925.
25. Peet, M. M. J. A. M. A. 84:1994, June 27, 1925.
26. Hubert S. Howe. J. A. M. A. 69:1410, October 27, 1917.
26. Sharpe, William. Am. J. Surg. Anesth. Supplement, p. 106, October, 1925.
27. Haden. J. A. M. A. 73:983, September, 1919.
28. Grant, F. C. Surg. Cl. North Am., February, 1924.
29. Rodman & Neubauer. Annals of Surg. 79:481, April, 1924.
30. Queckenstedt. Ztsch. f. Nerven-Heilkunde 55:325 (1916).
31. Connors. Annals Surg. 81:901-905, May, 1925.
32. Green, H. M. J. A. M. A. 86:391, Feb. 6, 1926.
33. Erlanger & Woodyatt. J. A. M. A. 69:1410, October 27, 1917.
34. Trotter. Clinical Lecture Lancet.
35. Fisher & Mensing. Bost. M. & S. J. 193:712, October 15, 1925. Glucose and Insulin in Shock, October 15, 1925.
36. Idem. Shocks and non-Diabetic Acidosis S. G. O., April, 1925, 548-555.
37. Fisher & Snell. Insulin in Non-diabetic Acidosis, J. A. M. A. 82:699 (1924).
38. Cannon. Am. J. Physiol. 6:120 (1902).
39. Matas, R. Intravenous Drip, Annals Surgery, 79: 643-661, May, 1924.
40. Hendon, G. A. Venoclysis, Am. J. Surg. 39:85-86, April, 1925, and Kentucky Med. J. 23:442, May, 1925.

DISCUSSION.

Dr. Landry (New Orleans): In his very recent review on intracranial trauma, Frazier found that the literature during the past year has continued to emphasize the tendency toward conservatism.

While it is impossible to set down any positive dictum or hard and fast rules to govern the treatment of these serious traumatisms,—as each case must be considered on its own merits,—still, we believe that the recommendations of Rand and Nielsen are well worth considering.

1st. They emphatically state that no case should be operated in shock.

2nd. Local anesthesia is preferable whenever possible.

3rd. Operate upon all cases where a local hemorrhage is suspected, as they believe it safer to remove the clot than to depend on absorption.

4th. In external hemorrhage, the dura should be opened, to be certain that there is no subdural clot as well.

5th. Compound fractures, require immediate attention, whether depressed or not.

Frazier has this to say of the extradural hemorrhages of middle meningeal origin: "These cases respond dramatically if the condition be recognized sufficiently early. Whenever a case of this type perishes, it is wholly and entirely due to our inability to arrive at a correct conception of the existing pathology in time to relieve the intracranial pressure by decompression before the vital medullary centers have been so badly injured that they no longer function. Speed in diagnosis and operation is the essence of the treatment under these circumstances."

Weaver held strongly to the expectant nonoperative treatment in his series of cases, surgery being held as a last resort unless there were definite indication for intervention; decompression was only resorted to when spinal tapping and hypertonic solutions failed to reduce the intracranial pressure.

Pulse and blood pressure readings should be frequently recorded as indicators of intracranial tension. Lumbar puncture with manometer readings is the most accurate method by which this may be estimated, and is also a valuable therapeutic measure toward its relief by drainage of the fluid.

In contrasting Weaver's figures with those of Rand and Nielsen, who had a higher operative mortality, because they decompressed in desperate risks, Frazier concludes: "This is the lesson to be learned. A certain percentage of patients thus injured will die no matter what is done. Immediate surgery simply increase the operative mortality without lowering the ultimate mortality. Careful observation, lumbar puncture, hypertonic solutions and the use of decompression and drainage only on very definite indications, and with a proper conception of what these indications are, comprise the essentials in the management of cranial trauma."

As to the relative value of the hypertonic solutions in reducing intracranial pressure, whether it be sodium chloride, sodium sulphate, magnesium sulphate, Ringer's solution or glucose—this is best summarized in the paper of Max M. Peet, of Ann Arbor, Mich. (Jnl. A. M. A. June 27th, 1925). His conclusions are as follows:

"The slow reduction of increased intracranial pressure in the absence of shock, hemorrhage, vomiting or dehydration is satisfactorily accomplished by the oral or rectal administration of magnesium sulphate.

The rapid reduction of intracranial tension, in acute intracranial traumas associated with shock, is best accomplished by the intravenous administration of hypertonic Ringer's solution. Glucose may be given later to maintain the lowered intracranial pressure.

Hypertonic glucose solution (50%) administered intravenously is indicated when acute intracranial pressure is associated with shock or hemorrhage, and in less acute cases when complicated by dehydration, nausea and vomiting.

Glucose has the following advantages over any of the salt solutions: Prolonged action, no terminal rise in pressure, nontoxicity, nondehydration, increased blood volumn in shock, and the control of acidosis."

Dr. Isidore Cohn (New Orleans): It is hardly worthwhile to discuss this paper after Dr. Parham's full discussion and Dr. Landry' opening. There are just a few things, however, that I believe are worthwhile summarizing. First is that we all realize and we are indebted to some of our leaders for the fact that more attention is now paid to the question of the increased intracranial tension rather than the fracture of the skull. A few years ago we all remember that when a patient had a head injury he was rushed into the operating room and a trephine done. At the present time evidence proves that fewer patients die and fewer patients are operated on. Take for instance statistics at Harlem Hospital from 1914 to 1917, eighteen per cent were operated; from 1916 to 1924, nine per cent were operated; 130 cases recovered without operation.

It must be remembered in this type of cases death results from shock in the first forty-eight hours in over sixty per cent of the cases; that medullary compression is the cause of death in another twenty per cent of the cases. Therefore, if the patient is going to die, don't help him on his way by surgical interference which increases, if possible, his shock.

The consensus of opinion has come to be that operation should be deferred during the first twenty-four hours, during that period the patient's constitution should be noted. Don't wait for twenty-four hours to do a spinal tapping and don't wait twenty-four hours to have fundus examined, but don't expect the eye grounds to show you a great deal in the early stages because they may not.

One of the indications for operation is evidence of an extradural hemorrhage, primary loss of consciousness, a period of lucidity followed by unconsciousness. Evidence of extradural hemorrhage indicate immediate operation.

A point not sufficiently stressed is the importance of the widely dilated and fixed pupil. If that does not go down in a short while the patient is probably going to die, but if it begins to recede in size, it is a fairly good omen.

Progressive increased intracranial tension, is indicated by a progressive slowing of the pulse, progressive rise in blood pressure and rise in spinal manometric reading.

In simple linear fractures increased tension may be relieved by magnesium sulphate by mouth and by rectum and by repeated spinal tappings.

Spinal fluid reading is considered by some of more value than the ophthalmologist's report. Spinal tapping when properly done for the relief of pressure is not dangerous.

Subtemporal decompression as a routine measure is a failure except in depressed fractures.

Decompression operations are indicated in depressed fractures and when an extradural hemorrhage exists.

Simple fractures with increased intracranial tension may be treated by ice bag, rest, magnesium sulphate by mouth and by rectum and repeated spinal tappings.

One word here with regard to magnesium sulphate and I am done. In the event you have evidence of a toxic reaction from magnesium sulphate relief may be obtained by giving calcium chloride intravenously.

Dr. Rudolph Matas (New Orleans): The three speakers today, Dr. Parham, Dr. Landry and Dr. Cohn, have covered the territory. It is perfectly useless for us to devote more time except to say one thing more which is always agreeable for any one who contributes to the discussion, and that is to praise the speakers. They are deserving, I think, of a great deal of praise for bringing up such an important question in the first place, as Dr. Parham has done.

When I think of the contrast at this time of our therapeutics of fracture in comparison to what it was even five years ago, really I think the new change in respect to mortality alone of these is a blessing. It is a great thing. Dr. Parham has brought this here today so that the mass of practitioners who are not exactly familiar with these cases can profit because it has a lesson of the greatest benefit to the general practitioner.

In the past when one had a fracture to deal with the first thing was to trephine, to do a craniectomy. Now every one can treat a fracture and do it well without resort to the knife. Still, let us not go too far, let the pendulum swing too far. I think mention has been made of hemorrhages. It is perfectly absurd to think that anything like a dehydration with magnesium or glucose is going to accomplish anything but temporary benefit, only to give time to prepare for the operation and keep the patient alive until he can get to it. That is the point. When is that time? I think in every case we must accentuate the fact that the patient must be relieved of shock. He must be helped. I mean by that that he must be brought to an operable state. Then after that, that very glucose solution, that very infusion is going to bring him back.

I think that our own experience, of course, has been partial to glucose. We have used a great deal of it and in all our experiences in dealing with cerebral tumors and preparing them for operation we have found that glucose is very acceptable. In these cases I don't know that it makes any difference but we know that glucose is a great help, first in preventing asthenic states ordinarily associated with malnutrition. To my mind it stimulates the heart a great deal better.

The aseptic solution of salt I think is the best stimulant and there is no danger in using solutions up to a thirty per cent. I haven't gone as far as fifty. It seems to me it would accomplish everything put right into the circulation. We have had occasion to see that and by manometer readings have found that ten per cent would do right well. We find a decided diminution but thirty per cent, the basis of the old solution, was supposed to be the limit for obtaining diuretic effects bringing on a state of temporary diuresis. However, I am not prepared to say that any extraordinary benefit would be acquired by the use of fifty per cent. I believe that we can do everything we want with the thirty. I think for anything more than that I would be inclined to give insulin.

At any rate, the point is when the patient has been brought to this condition to determine what is going on. If it is a hemorrhage, is it increasing? The tapping becomes necessary. There is no reason why it should not be done. I have never seen hemorrhagic cases in any danger from tapping. It has been said it is dangerous but that is only because it is dangerous in certain cerebral tumors which are liable to displacement of the medulla or cerebellum. The medulla can be drawn into the foramina in tumors when the supporting pressure is removed but not at all in fractures. It can only do good.

The first thing it does to help diagnosis is in the sense that we can see what is going on. If there is a progressive hemorrhage the fluid will show it. If the hemorrhage is checking it will show it by the type and color without the necessity of counting the cells. So that the tapping really is most beneficial in keeping us informed. However, in the majority of cases that information comes to us from the actual improvement in the patient's condition without the necessity of tapping, but if he is not improving then we must not wait too long but we should proceed to find out where the mechanical obstacle is. The compression agent, the clot if there is one, can be removed and should be removed if possible. The depression is decidedly important.

Here comes in the question of judgment. How far must we go on the conservative side, how far on the opposite side, and in between is where experience comes in. There is no exact way of telling. I presume that the general practitioner facing a case of that kind would say, "Well, the patient is not getting better; we better find out." And I think that probably would be the right thing.

Don't wait until he is extreme, until he is beginning to change respiration, until his medulla is paralyzed. There is the whole thing. If you are dealing with a very conservative man, a man

not dealing with surgery much, he is probably going to push his treatments more and repeat them until the moment is over. And if you get a surgeon who is doing this work all the time, is accustomed to it, he is very likely going to overstep to the other side and go and operate and the patient probably will get well without the necessity.

However, I do say that if the patient has been brought out of a state of shock, there can never be any very great risk in doing a subtemporal decompression. That is a benign operation comparatively. There is some risk but to do an extradural decompression I think certainly does no harm. Providing you have operated when the patient could stand simply the local anesthesia, where you don't need a general anesthetic, that is one of the great benefits of local anesthesia. You can do the work very satisfactorily, especially with these suddenly conscious patients, sometimes comatose and usually in profound stupor.

We have really a great question most opportunely brought up in a timely way and one that I think is going to be of enormous help in reducing the mortality. Still I think surgeons and medical men and practitioners must come together and gradually work out the question of the precise indications for intervention in these cases. I can only say, praise to the speakers; they have done a world of good. (Applause.)

Dr. C. P. Gray (Monroe): Mr. Chairman, it is with quite a good deal of hesitancy that I follow the previous speaker. It seems to me that we should let the sweetness stay where it is. I do, however, want to say this, that I most heartily agree with the expressions of Dr. Parham and the previous speakers, but if possible I want to say exactly the things which they have said except to say it in stronger terms.

For years and years we have looked upon skull fractures from the wrong viewpoint. The object of my paper which I would have read had time permitted was to try and bring before you the fallacy of that old term "skull fracture." We have always looked upon skull fracture as a condition where only the bone is involved and have forgotten that it is the damage to the underlying tissue which produces the symptoms and not the fracture of the skull. A fracture of the skull will no more kill a man than a fracture of the leg, and I think that the time has come when we should understand it that way.

If possible I would like to emphasize exactly what Dr. Parham brought before you, that is, that it is the damage to the brain tissue and the resulting symptoms from the injury which call for attention.

First in the line of treatment of these cases, I would emphasize the fact that other than a compound fracture of the skull or an injury to the head with an active hemorrhage, there is no immediate need to rush that patient to the hospital and perform a decompression operation. With those two exceptions there is no need for undue haste.

The next thing that I would impress upon you is that these patients in the past haven't had the study and care and the repeated examinations that they are entitled to. The average patient with a head injury, whether he has a fracture of the skull or not, if he is presenting symptoms of an intracranial tension, is entitled not only to one examination, not only to one neurological examination, but is entitled to several examinations. By all means he is entitled to this plan of treatment as outlined by Dr. Parham before any surgical measures should be resorted to. Bear in mind, I am saying, in all of these cases with the exception of a compound fracture of the skull and injury to the head with active bleeding.

There is one other point that I would like to impress. It is the same thing that the previous speakers have told you, and that is the spinal puncture. There are some that argue pro and con about the spinal puncture. In my opinion it has been conclusively proven by some of the varied writers and authorities and as Dr. Parham and Dr. Matas so nicely brought out, that a spinal puncture in these cases of head injuries or fractured skulls with increased intracranial tension can only do them good. I can't conceive of how it is going to do any harm.

Dr. Thos. E. Wright (Monroe): Possibly it may appear a little presumptious for a medical man to discuss a surgical paper, but I don't think I can recall a single time when I have read a medical paper that Dr. Parham has not been kind enough to discuss it; so I think it is fair play that I should discuss his.

I wish it were possible that every man doing surgery in Louisiana could have been here and heard the paper and heard the discussion. It was such a sensible, clearcut, logical plea of conservatism in head injuries. Along with this plea for conservatism, Dr. Matas strikes a keynote when he says we must be conservatively conservative and not allow ourselves to lead the patient into deep water.

Unfortunately the young surgeon with great ambition and often a lack of good judgment fails to get a good perspective of some cases. He may fail to interpret intelligently the findings, and fail to classify the case into that particular division which would be proper or best relative to surgical

procedures. Often youth may rush in and develop a tragedy where a more conservative man and a man who gets a good perspective of the case, and watches it carefully and skillfully brings his patient around without operation.

As a medical man I would say frankly I enjoy hearing papers that call for more conservatism in surgery.

Dr. Parham (closing): Gentlemen, I appreciate very much the discussion that has taken place. I only want to say a few words in closing. I wish to say first, that I do not mean to indicate that spinal puncture should be done in every case. There are certain indications which are gathered from a careful observation of the case which would indicate that we want more information than we can get by simple observation methods of what is going on in that skull.

Further, I would like to say this, that some of the gentlemen like Sharp, who have announced the opinion that spinal puncture is dangerous, do not show it by their practice. For instance, Sharp in a series of 1600 spinal punctures which he has done reports only three deaths, all three of them done by students whose sole desire seemed to be to get the fluid out and not with the special indication of relieving the tension. Two of those cases were of tumors and the third case was internal hydrocephalus, so that his case against spinal puncture I do not think would stand.

I wanted to insist upon, first, the point that spinal puncture carefully done is safe. In the second place, diagnostically it will give us information which will enable us to say what further should be done. If that case is not a case requiring further spinal puncture as indicated by the tension then we do not go on with the spinal puncture.

Sharp says that you should not draw at one puncture more than 5 cc. of fluid. Another point I should like to call attention to is that when you get your needle in you don't necessarily have to relieve the spinal canal of fluid. You only do it where the indication is of tension. Sharp says you must not draw over 5 cc., but in a certain number of cases he has drawn more than that because he felt that the tension must be relieved at once.

In the last place, I would like to call attention to the subsidiary measures of intravenous injection. Cushing states from his own observation and his experiments that where the case has progressed to the point of Cheyne-Stokes respiration an intravenous injection may bring that patient around to consciousness again. I think we must consider that a measure worth calling attention to. I would like to say finally this, that I believe where we have a number of means of treating a condition there is no reason why we should confine ourselves to one particular method. Some of the gentlemen like Jackson believe in spinal drainage, some like Frazier and Foley believe in dehydration, especially by introduction of these concentrated solutions which act by osmotic pressure, drawing fluid from the brain, but why should we not resort to these different measures in a particular case instead of confining our attention to one. I believe that we should take advantage of all the means at our disposal and get the best results that we can for the patient.

SOME OF THE MORE COMMON MENTAL DISEASES.*

WITH SUGGESTIONS AS TO TREATMENT AND PREVENTION BY COUNTY HEALTH UNITS.

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Mental diseases are not separate and distinct disorders, confined to the brain alone. The mentally deranged person is in most instances a sick person all the way through. Some acute diseases are prone to become the exciting cause of mental derangement, especially in those of a psychopathic make-up, or trend. It is to the psychopathic, by heredity and environment, that we can profitably apply preventive measures and save to the state a citizen who otherwise would become a case for custodial care in a state hospital for the insane.

Acid conditions due to violent toxins, faulty action of organs, faulty elimination of by-products in the system, may and often do cause mental diseases. The ductless glands are unquestionably at fault in many mental disorders. Symptoms of disease, especially mental diseases, are the result of an imbalance between the endocrine and vegetative nervous systems. Maintain the equilibrium between these systems and we have no symptoms presented. Long be-

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fore and long after the Christian era, the majority of cases of insanity were not only not treated as diseased, but the unfortunate subjects were punished as possessed of the devil. It is only in later years that mental diseases are beginning to receive from the medical profession the close attention and study they deserve, with the result that much progress has been made.

In order that the care and treatment of mental diseases may be presented in a more lucid manner, we propose to discuss a few types of insanity as classified by Kraeplin and accepted generally by the profession. But before going into the types, we will first mention a few of the characteristic symptoms to which our attention is first called, as a rule, when coming in contact with a person suffering from mental disease: Delusions, hallucinations, illusions, disorientations, change of personality and conflict of emotions.

Delusions are errors of judgment, or false ideas from pathological sensory perceptions. Delusions may be depressive or exalting, and transitory or fixed. Hallucinations are perceptions without an object; these may be visceral, somatic, or of the special senses. Illusions are false interpretations of objects perceived. Disorientation means the inability to recognize and associate one's self with his surroundings, with time, and place. In cases of change of personality, one who was very precise, clean and neat, becomes negligent, loose in morals, thoughts and habits. By conflict of emotions is meant two opposed emotions co-existing in the same psychic system, both trying to manifest themselves at the same time.

The first group we will take up is the "Defective Developmental Class." Under this caption comes that great class of patients varying in degree from complete deprivation of all higher mental powers and inability of acquiring and retaining ordinary knowledge of an education, to those suffering from defective judgment as a result of a diseased or defective brain, congenital or acquired, in or during its development.

The first is "Idiocy." By this we mean the lowest grade of weakmindedness seen from birth. The patient is deprived of nearly all, or all, of the higher mental powers and is unable to achieve even the simplest accomplishment. No matter how diligently he may be taught there is no improvement. The legal definition of an idiot is, "One without a mind." This class is easily recognized when seen in early life during the first three or four years. The principal early manifestations are continued, violent, unprovoked crying, no attempt to take nourishment, impossibility to fix or get the child's gaze, a blank mask-like expressionless face. As they grow older they are never able to attend to their bodily wants, never able to dress themselves. They require constant care and attention. They would perish for lack of food or freeze owing to their inability to dress. No treatment will help their minds. It is, therefore, only necessary to care for their physical bodies and look upon them as babies throughout life.

Next we will mention "Imbecility." By this we mean acquired idiocy. At the age when intelligence manifests itself, the imbecile mind does not continue to grow and becomes surly or noisy. He can say only a few words at the age when normal children have a full flow of language. The imbecile can only understand a restricted number of words for his age, although perhaps is able to pronounce or say many more. This class is recognized about the 2nd or 3rd year of life, or thereafter, always before puberty, by their inability in learning to speak, lateness in learning to walk, inability to learn, to understand, or repeat. They can be improved by proper teaching, care and supervision, but never at the pace of the normal, and never are able to take proper care of themselves or to assume their place in society. The legal definition of an imbecile is "An adult with the mind

of a child." It is in this type of cases that special care and work will be most useful. We are able to teach the imbecile (not low-grade) to do certain works of art or handicraft that will, while not making him self-supporting, keep him out of badness and under supervision, thereby preventing him from becoming a burden upon the community and a menace to society. Of course, he will need the bodily care that is necessary for all mental deficients.

By feeblemindedness we mean those known as backward children; the savants, the delinquents, and the morally weak. Patients of this class are capable of much improvement by education, and if properly taken care of may become nearly normal; environment has much to do with the ultimate outcome. When properly treated they can take their places in society and become self-supporting. They are generally recognized about the age of puberty or just after; often have a high opinion of their ability; persist in their judgment; want to impose their ideas and, as a result of this, they often blunder in their understandings.

Constitutional Psychopathic Inferiority: To this class belongs that number of individuals whose mental faculties are more or less normal, but who show some small strain or mental twist, and lack the great forces that drive the normal person to success. Their determination, will-power and foresight are usually deficient and they are unable to carry responsibilities. Thorough training means much to this type of patients, for while not having a well-defined psychosis, they are unstable, changeable, and usually high-tempered; and it is a well known fact that some type of employment wherein the subject can see and appreciate the work being done, also realizing that the product will bring some remuneration, goes far toward keeping him in a state of contentment by establishing and maintaining a degree of mental equilibrium sufficiently strong to guarantee stability to such an extent that he is no longer a menace nor a source of danger.

Manic Depressive Insanity: Under this caption comes that great class of cases characterized by fluctuation of effects, or emotions, varying in degree from profound depression to marked excitability. The sub-groups, or those coming under this caption, are the depressed, manic, circular recurrent, and stuporous. Under the depressive type we have those cases formerly known as melancholia, the predominant symptoms of which are marked mental depression, motor inactivity, sensory parathesia, anaesthesia, etc. The patient sits quietly and is blue, the world is going back on him, and he is doomed. He makes no effort at defense or protection, suffers with suicidal tendencies, anorexia and constipation, the predominating delusion, when a delusion is present, is self-accusation, or one of fear and apprehension. Hallucinations are sometimes present. Of course, there are various types. Regarding the care and treatment of this class of patients, I will state that they require extreme care and sympathy. At the beginning they should be placed in bed, thorough elimination procured, and this is quite a task in some instances, requiring frequent repetition of such drugs as are known to arouse all the emunctories; the prolonged warm and continuous bath is indicated. The diet should be carefully looked after, eating such things as will give "pep" and build red blood corpuscles. A system of slight over-feeding might be better. Never leave the selection of the quality nor quantity to the patient. Should you do this he will starve himself. When a suicidal tendency exists never leave the patient alone nor allow him to have anything in his possession with which he could harm himself. Engage him in pleasant conversation when possible, and never refer to the patient's depressed condition. Always talk of something pleasant. Otherwise, better not talk to him at all. Always agree with him, that

he is sick, but assure him that he will get well. When a patient begins to react, or take on new life, as it were, suggest outdoor exercise in the form of walking; later some kind of work that will interest him and keep his mind off of himself, writing letters, playing games, with his co-workers, speaking words of encouragement at all times.

Under the Manic Type, we have those cases formerly known as acute mania. The predominating symptom is psychomotor activity. The patient frequently is in a state of muscular, as well as mental, activity and excitability, paresthesia, hyperesthesia, garrulity, loquaciousness and exaltation. He is excited, moving constantly, on high tension, boisterous, noisy, suffers from insomnia, either has anorexia or constipation, or is gluttonous and fattens. In his opinion he is always able to accomplish any and everything. The delusions, when present, are of a grandiose character; the hallucinations, when present, are very elementary, transitory and unsystematized.

In the Circular Type of Manic Depressive Insanity, the condition is recognized by its cycles in which there are periods of mania alternating with periods of melancholy, each succeeding the other, separated by a short period of return to normal, or going from a state of depression to that of excitement, or vice versa. This class of patients should be handled with care, and much tact is required. You should study your patient to the extent that you are able to anticipate a large part of his desires, get him clear away from himself, interest him in something new and novel. In this type, some form of occupation, which might be called monotonous, with occasional periods of rest and recreation is called for, always seeing that a generous and well-prepared diet is given.

The Dementia Præcox Group will next be considered. This is a disease characterized by a splitting of personalities, while there are maintained, at one and the same time, two distinct and mutually opposed trends of thought, with withdrawal from the reality, introverted thinking, and emotional dullness; it occurs usually at the age of adolescence and progresses to early dementia or retrogresses to a remission or recovery. Dementia præcox is divided into classes according to certain peculiar symptoms found in the different types. The hebephrenic type in which the predominating symptoms are progressive enfeeblement of the mind, gradually manifesting itself with insomnia, lethargy, malaise and inability to work. The patient becomes brooding, quiet and solitary in character, shows absolute indifference to surroundings and persons. The symptoms may resemble those of hysteria or neurasthenia. Patients retain their early memory, but lose the power of adding new memories, which is probably due to an inability to fix their attentions. Orientation is seldom disturbed, but the flow of ideas and of thought is slow. The patients neglect their persons and often the calls of nature. There is marked negativism and streotypy. Delusions are generally paranoid in type. Hallucinations are usually auditory. There are frequent and sudden emotional explosions. This disease usually occurs in early life. A peculiar characteristic of this disease is that the patient assumes two distinct personalities, and from the resulting conflict often delusional expressions develop, which are absolutely illogical. No treatment has been found in this type of dementia that surpasses constant employment. Constant employment, exciting interest, re-establishing self-confidence if possible, keep the deteriorating mind from sinking or withering away, as it were. Here, tact, patience, and perseverance mean success with many cases.

In the Catatonic Type of Dementia Præcox the predominant symptoms are the catatonic stupor, and excitability. In the stuporous type, or stage, the negativism reaches the highest development, the patients become fixed in their attitude or

positions. Whatever the position assumed, they remain in it immobile, dumb, answering few if any questions, attend to no calls of nature. They respond to no stimuli. If they do speak or move, this is stereotyped in way, or manner. In case of catatonic excitement there is constant talkativeness, marked activity, during which the patient becomes very destructive, but, with no fixed motive in view. They also become very noisy or may even develop epileptoid convulsions. They are clumsy, awkward, dull, seclusive. Delusions are fleeting, and unsystematized; the hallucinations are few and transitory. The deterioration is slow and superficial, and nothing medical or surgical has as yet succeeded in aiding or relieving this type of patients.

There is a possibility, however, that eventually some continued form of employment may be found to help these patients whereby this screen, as it were, may be permanently removed from around the patient, and enable him to see himself as others see him.

In the Paranoid Type, the emotional indifference, the unresponsiveness to stimuli is not marked. The hallucinations are more fixed, and logical. The delusions are more coherent and connected, and are generally of a persecutory type and grandiose in character. In this type, the splitting of personality is striking.

It is a well known fact among authorities connected with hospitals for mental diseases, that a larger percent of mental troubles could have been prevented, had the person been located and treated along preventive lines before the mental condition became established.

Regarding the treatment and prevention of these various types mentioned, I would suggest that you first look well after the physical body, removing any aggravating, or activating causes that can be found, arouse all enunctories, eliminate thoroughly, establish an equilibrium between the endocrine and vegetative nervous systems; rest and regulate recreation. For these various types I can suggest nothing better than the establishment of an occupational therapy department in each grammer school in the state. Occupational therapy today is playing such an important part in the treatment of the insane and mental defectives, that it has become necessary to equip and educate more people in this line of work, in order that more institutions may provide this form of treatment for their inmates; and there is no better way nor method of treating the unsuspecting patient, and at the same time equip him for securing a livelihood and relieving the state of the burden, as well as relieving the institutions of a potential inmate. A department of this kind can be made self-sustaining, and at the same time will tide many little ones over, who are potential mental cases, and prevent them from becoming delinquents and a menace to society, and eventually a burden on the State.

In addition to this form of treatment, and, in fact, preparatory to establishing departments of this kind, I know of no more important aid than for each health unit to have a well-trained social service worker, who has psychiatric training and who could give mental tests and establish mental ages, preparatory to entering these departments. This social service worker would also be of wonderful help to the family physician in treating the older ones by means of suggestion, teaching them how to handle and care for these defective and psychopathic children.

Gesell said, in "The Pre-School Child," published in 1923, that, "Although mental or nervous disability constitutes one of the heaviest burdens of society, almost nothing has been done by the public schools in the way of preventive hygiene. At that time there were 249,000 mental patients actually in the institutions of the United States. At the same time there were quite as many on parole and under the direct supervision of institutional authorities. A

considerable proportion of all cases of mental and nervous diseases are conditioned, if not caused, by factors which operate in childhood and youth. There are no convenient or accurate methods of diagnosis, which will reveal these children, who are harboring a latent insanity or developing the basis for an insanity.

Careful observation and guidance of people with psychopathic tendencies has, on a small scale, been successfully inaugurated in some of the New York public schools. The first step in the development of constructive school measures lies in recognizing pupils who show serious defects in personality make-up, symptoms of emotional instability, emotional shallowness, symptoms of perversions, irritability, morbid fears, psychasthenia, social mal-adjustments, infantile tendencies, etc. The psychopathic child is father to the psychopathic man. Once the significance of this type of child is grasped, ways and means for ameliorating his condition, and forestalling its latter-day consequences can be found. The psychiatric social worker would be a counter-part of the public health nurse, and work in close contact with her, but she would revolve in a different circle of problems. Instead of patients with discharging ears and deteriorating molars, her patients would be the child with night terrors, the nail biter, the over-tearful child, the over-silent child, pervert, the infantile child, the unstable choreic. Handling of these cases would embrace a combination of medical and educational treatment, which alone is adequate to reconstruct them mentally. These provisions, of course, imply neurological and psychiatric specialists, educational psychologists, together with trained psychiatric social service workers. From a financial viewpoint these suggestions may seem extravagant; but only by such radical, and sincere methods, can we ever hope to reduce the massive burden of adult insanity. Expensive in the beginning, a preventive juvenile system of sanitation, administered through the public schools may, after all, prove to be a form of socialized thrift.

Each unit, by all means, should have a social service worker of this type, and an occupational therapy center, if it were found impossible to have one in each school. Also, in the way of prevention, I would say keep the physical body well, remove sources of toxins, have your social service worker to advise with the families and take advantage of each Parent-Teachers' Association meeting, to stress the necessity of co-operation of parents in handling delinquents, and subnormals, and preventing the development of a permanent, or perhaps incurable psychosis. The family physician, county health officer, the county health nurse, social service worker, and occupational therapy instructor could do wonders in the way of prevention of mental diseases.

DISCUSSION.

Dr. H. H. Ramsay (Ellisville): I want to congratulate Dr. Clark on this splendid presentation of the subject. Dr. Clark has covered rather thoroughly the entire field of mental defectives and mental diseases, therefore any extensive discussion of the paper is impossible. I shall only attempt briefly to discuss some of the points which I think are somewhat important.

As has been brought out yesterday before this Association, the problem of mental disease and mental defectives presents itself to us as one of the most outstanding problems of taxation, an economic problem to the taxpayers, because there is no problem today which is more important to the taxpayers of the country. Millions of dollars are being expended for the institutional and custodial care of mental defectives and the mentally diseased, while there is practically no preventive work being done. These vast sums which are being taken out of the treasury of this State, as well as others, are taking care of the end results of mental disease. Dr. Adams illustrated this splendidly yesterday in a conversation with him when he said he had asked a little boy what he would do if he were in a basement where water was pouring in at the rate of 25 gallons a minute, and he could only bail out 5 gallons a minute—what would he do to keep from drowning? And the boy replied, "I would turn off the faucet." And that is what we must do with mental defectives.

Dr. Clark outlines the three chief grades of mental defectives—the low-grade idiot, the born idiot, the individual who is born without intelligence and for whom there is nothing to be done other than custodial care. The next grade is the imbecile for whom there is some developmental training and some of whom can learn useful occupations and be of some service. The moron, who thinks he is smarter than anybody, the type of fellow who today with his disturbed emotions, his poor emotional connection with his intelligence, is disturbing society, the man who is a failure, and in a majority of cases is looting banks, stealing automobiles, and upsetting society generally.

In this connection I want to say that the public knows practically nothing about this matter of mental deficiency. When they see anyone who is a raving maniac and tearing his clothes they know that man is crazy, but the ordinary mental defective, the psychotic individual, they do not understand, and so from time immemorial we have put these low-grade idiots, these people who are a care in their homes and worthless as far as occupation is concerned, into insane asylyms, and have failed to recognize the higher grades that go into society and fail. If they happen to have stable emotions, they succeed. Practically everyone of you know of some imbecile who has adjusted himself to conditions and is doing no harm, because he has good emotions; but another fellow whose intelligence is a little higher but whose emotions are bad is stealing automobiles, starting fires, and doing all sorts of crime in the community. This is the tragedy —that many of the mental defectives the public, and I am sorry to say the medical profession in the past, have failed to recognize. These are the types we need to recognize and endeavor to get into our institutions. It is not necessary to put all the feebleminded into institutions, provided they are in good homes and are well adjusted. But the feebleminded child who is in a bad environment, who has a bad emotional makeup, will become a problem to the State, and he should be in an institution where he will be properly supervised and trained and not become a problem for society.

Dr. William L. Little (Wesson): A few years ago this state made a great fight for the prevention of tuberculosis. The people have been taught how to live so as to prevent it. Now we need to make a fight on some types of mental weakness. We have had a good paper and fair discussion, but to my mind have missed one of the most important points. We are teaching prophylaxis, but we have failed to discuss the prevention of feeblemindedness. I believe we should make an effort to prevent the increasing birth rate of defective babies. Every child has a right to be born perfect and if it is not a certain percentage of the blame rests upon our physicians and upon the Legislature. The State Board of Health has a right to institute quarantine, and vaccinate against smallpox, why not go to our institutions for the criminals and the feebleminded and make a study of each occupant or patient with a view of preventing a recurrence by heredity. We must render them sterile, and we should have laws to prevent the marriages of these unfortunates until propagation is impossible. As a practitioner you see the same things I see. You know certain sections in your county where you have several weakminded people. They intermarry and bring up a lot more to be cared for by the State of Mississippi. We are being called upon to provide larger institutions for their care. My idea is to prevent such a state of affairs. Dr. Ramsay has a great institution and is doing a wonderful work. We ought to be able to go over there and select certain ones, and when they are returned home they will not have the power to beget children like themselves. If we will make a fight along these lines, go to our Legislature and have them make laws that will prevent, then we will be doing work worth while.

Dr. W. H. Frizzell (Brookhaven): I want to congratulate the Association on this paper of Dr. Clark. He is a classmate of mine and a dear friend. He has had a great deal of experience along this line. As he says, it is an economic question we must consider, and until the people of the State of Mississippi are educated to this we must pay for our ignorance and stupidity inasmuch as we cannot build institutions big enough to hold them from now on. But this thing must be carried back to the people, and largely by the physicians.

It seems that eugenics laws are not popular. Dorothy Dix makes Samantha say, "Eugenics, what's dem?" Oh, dat's easy; all you has to do is to choose your parents." Some of us have waited too long to choose our parents, for some of us are not far above morons.

It is largely a question of education, and we will have to bear the expense of keeping them confined until the people are educated up to the idea of prevention.

Dr. Mabel C. Kemmerer (Jackson): I wish to speak briefly of the relation of modern psychology to the problems that confront the social workers and physicians. We are social beings—we are living among those of our kind, we are in social groups, and we live with people who are not as well adjusted socially as they might be. That

is more or less true of everyone of us. Some are better adjusted than others. We do not have to live with the custodial cases, and so responsibility simmers down to an educational problem, a problem of training for the best possible adjustment to the world in which we live.

I emphasize only one aspect of the problem—that if the whole thing is basically an educational problem, then we must begin early, with the child. It is now recognized that the first two years of the child's life are the most essential in determining the child's future mental health; if you please—to a greater extent than his physical health. I will speak of one aspect of mental hygiene in childhood, and that is the pernicious effect of fear in determining future maladjustments. The work of Watson has proved beyond question that the child is born with but two fears, and these are very simple—fear of sudden removal of support, and fear of loud sounds; that all other fears are acquired, and are in the nature of conditioned responses, or reactions to substitute stimuli.

The basic facts have been worked out by Pavlow, a Russian, who has been working twenty years on conditioned responses. His work has given the most promising lead in mental hygiene today—the fact that so many of our responses are of the conditioned type. There is no reflex muscular or glandular that cannot be conditioned. The response may be simple or complex. That throws a light upon many obscure physical and mental reactions. I call this to your attention as medical men because there is no more promising field for study than these conditioned responses.

W. E. Clark (closing): I wish to thank you for the free discussion of my paper. We find that this, the most important subject, the most important field before us today in Mississi , as the discussion has brought out, is largely a process of education. Regarding the sterilization of these patients: As a matter of fact, we have no law legalizing sterilization in Mississippi. I can not see, though, where it would materially help, except to stop the propagation of these individuals.

Sometimes we find cases where feebleminded and imbecile children come from apparently healthy, normal parents; therefore, I do not believe that sterilization would eliminate it altogether. It has been said that we should be careful who our ancestors are. We do know that the child of today is the grandparent of tomorrow, and the best that we can do is to try to educate and train the child of today.

SOME OBSERVATIONS ON THE IMMEDIATE PROGNOSIS OF MAJOR OPERATIONS.*

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The importance of making the right immediate prognosis before a major operation is well recognized, but the ability to do so correctly is at times almost impossible. That this importance is not exaggerated is borne out by the fact that the surgeon always consciously or unconsciously is considering the outcome of his case, when he is deliberating on his choice of anesthetic, his selection of technique, his method of procedure; while to the patient this importance is expressed by the oft-repeated question, so frequently asked: "Doctor, is this operation dangerous?" To lay down some facts that help us in making a correct immediate prognosis, *i. e.*, that will help us to foretell fairly accurately whether a patient will recover from the operation, is the purpose of this paper.

The great majority of patients that succumb to an operation, seldom die of the disease that necessitated the operation, but of disease in other organs not infrequently far remote. The expression "The operation was satisfactory, not difficult to perform, but this or that complication set in, etc., etc.," is too often heard; and, in many instances if the patient had been properly studied before operation and an exact knowledge of his physical condition ascertained, the complication might have been anticipated and consequently prevented. Of course, we all agree that medicine is not an exact science, and that no one can prognosticate unerringly at all times. That sepsis, thrombosis and embolism, and pneumonia can and do occur without the least warning, and that at the present time, we

*Read before the Louisiana State Medical Society, Monroe, April 15-17, 1926.

have no way of foretelling in which patient any of these above conditions may occur.

We can however with our present knowledge of asepsis, with careful technique and painstaking attention to details reduce infection to a minimum, and with gentleness and careful handling of tissues lessen the probability of embolism. Pneumonia, of course, is more difficult to avoid; and while we all agree that the presence of an active pre-operative lesion in the lungs, be it grippe or bronchitis, or any other, renders the prognosis less good, we also know that pneumonia may occur, and does occur, post-operatively in lungs which had been found normal on examination before operation.

Nor can we say that choosing the right anesthetic will relieve us of this post-operative worry, for while we recognize that the majority of pneumoniae follow the giving of a general anesthetic, we must not overlook the fact that not infrequently pneumonia occurs in patients operated under local anesthesia, the infection being carried to the lungs by way of the blood stream and of the lymphatics. This dread of possible pneumonia, however, should not deter us from giving an immediate favorable prognosis, provided the patient's general condition is good, for we all know that it is the patient who is below par who most easily fails to rally from this pulmonary congestion.

This then, brings us at once to a consideration of what constitutes good physical condition. An individual may be said to be in good physical condition for an operation when his heart, lungs, kidneys and blood are normal or vary but slightly from the normal. I am sure all of us will subscribe to this statement. But I wish to state here most emphatically that the average pre-operative examination made to determine this physical condition is most inadequate and frequently of very little value; and that to determine the normalcy of these organs, or their degree of variation from the normal, other tests, more delicate and accurate must be done, which give us greater knowledge of existing conditions and which experience has proven to be of immense value.

It is not the purpose of this paper to theorize as to the causes which bring about pathological changes in these organs, nor discuss the therapeutic means to correct these changes, but simply to note the changes, interpret them correctly and so be guided in our prognosis and our method of procedure.

THE HEART.

As Briant so well puts it, "Many individuals supposed to be in fair or good health may in reality, be on the verge of extreme cardiac incompetency, for it must be well remembered that the changes which take place in the myocardium, do so insidiously and that, from a muscle capable of carrying its normal load and the excesses thrust upon it by the sudden incidents arising in the course of the individual's life, it changes to a more or less abnormal state, varying from the slightest change, causing no inconvenience, and entailing practically no risk whatever the stress thrust upon it, to the extreme alteration that accounts for sudden death under most usual circumstances of living."

A vital tissue, this myocardium, and one about which we cannot know too much, and yet is it not a deplorable fact that the usual routine examination of the heart before operation leaves out the one thing which gives us the most information about the myocardium? I refer to the estimation of the pulse pressure. The size of the heart and its rhythm is noted, the rate counted, murmurs listened for. But the pulse pressure is ignored. And what does it matter if a patient have a leaky valve if that leak is fully compensated? Such patient may be and often is a very good surgical risk. But what if he have advanced myocardial degeneration? Such degeneration may and at times does exist without any discernible valvular lesion, and the extent of such de-

generation must guide us in giving our prognosis. It is most easily arrived at by an estimation of the pulse pressure.

We all believe that it is dangerous to perform a major operation on a patient with a systolic pressure below 100. I believe that it is equally as dangerous, if not more so to operate on a patient with a pulse pressure of 80 or over, for if we consider a pressure of 40 mn. of mercury the normal pulse pressure of an adult, and that it fluctuates within narrow limits according to the age of the patient, we must conclude and experience has shown this to be true, that a pulse pressure of 80 indicates that the myocardium has lost a great deal of its reserve strength. The prognosis varies therefore in direct ratio to the rise of the pulse pressure—the greater the rise the more the muscle is diseased, with pressures of 80 or over exerting a most unfavorable prognosis. And while it is true that at the present time no measure has been established by which we may determine what extra strain the heart will stand, still the knowledge we have beforehand of such existing degeneration must in a large measure influence our prognosis, our operative procedure, and our post-operative treatment.

THE KIDNEYS.

Probably no organ in the body is more abused than the kidneys. What with the infectious diseases of childhood and the tremendous dietary indiscretions of later life it is truly to be wondered at, that in general, the kidneys stand up as well as they do. But here again as with the heart, we must bear in mind that degenerative changes in the kidneys often take place insidicusly, and that kidneys which appear to be normal following a routine chemical and microscopical urine examination, may in reality be performing but a very small percentage of their normal function. These facts of course are not new, but unfortunately they are too often forgotten. How frequently does one hear at a Medical Staff meeting, when the deaths of the preceding month are reviewed, an experience something like this: "Patient was operated on, reacted well from the operation, no trouble was anticipated, then suddenly the kidneys failed and the cause of death attributed to an acute nephritis." Do we not all know of many such cases, and in some cases following even such a simple operation as appendectomy? A routine examination of the urine in the great majority of these kidney deaths that have come under my observation failed to reveal any pathology before operation. The urine was chemically and microscopically negative, hence the common expression, "The kidneys suddenly failed." But can we in the light of present knowledge and with no further examination, say that these kidneys were normal, or is it not more sensible, I may well say more correct to assume that although chemically and microscopically the urine was negative, still in the absence of proof to the contrary, these kidneys were not normal and their function impaired? Such must undoubtedly be the case as we have had many occasions to observe in the past three years, and this is why a blood chemical examination for nitrogen retention products should be made before operating on any major case. This rule we have followed with great satisfaction in all of our major work since 1923.

As William Mayo so well describes it, "The function of the kidney may be defined as the filtration of non-colloid constituents of the blood plasma through the capsule and the reabsorption of threshold bodies in solution through the tubule cells. The kidney is therefore chiefly a filter whose function it is to eliminate from the blood certain metabolites such as urea-chlorides and creatinin." The estimation of these substances in the blood affords us the most reliable information as to the true amount of renal function. It has been estimated that a 100 cc. of blood contain normally:

35. mg. of Total Non-Protein Nitrogen.
12 to 15 mg. of Urea Nitrogen.
1 to 3 mg. of Uric Acid.
1 to 2½ mg. of Creatinin.

From this normal wide variation may occur, but as a means of arriving at some definite idea of the degree of function we may expect from the kidneys following a major operation, we estimate that when the above normal figures have been doubled we are dealing with a poorly functioning kidney, and we have reached the conclusion that when the urea nitrogen rises to 75 the operation carries a decided risk, the higher it rises above 75 the more serious is the risk. Such patients may with proper care and careful preparation be tided over their operation, but it is well for the surgeon to realize that they are bad surgical risks and be guided accordingly in his prognosis.

The estimation of the creatinin is probably just as important as that of urea. As you know creatinin is a normal constituent of the blood and of the urine and is excreted from the body by the way of the kidneys. It is partly derived from the preformed creatinin in the meats we eat and partly from the muscular metabolism of the body. Its estimation as a prognostic index cannot be overestimated.

As we have progressed with this work we have come to feel that a rise of creatinin above 3 is of bad prognostic significance, and while some authorities state that patients can live with a creatinin retention of 10, I myself have never seen a patient survive a major operation when the creatinin reading was 5 or above before operation. As I have stated before a poorly functioning kidney may excrete a urine which will be found negative when examined by the usual methods. I could cite many instances that occurred in our series of over two hundred cases but I think this one example which shows the most tremendous discrepancy of any of the cases which came under my observation will suffice:

W. T., white, male, age 37, with a urine chemically and microscopically negative, when examined for Nitrogen retention products gave the following results:

T. N. P. N.	200
Urea N.	125
Creatinin	6

Such a discrepancy is unbelievable, were it not for the fact that the blood chemistry examination was done by conscientious and able laboratory workers; and the urine examined by one of the most painstaking and intelligent internes it has ever been our good fortune to have associated with us, and who, conscious of this discrepancy double checked all the figures.

Truly, gentlemen, we cannot say that a patient's kidneys are normal simply because we receive a negative urine report, and before submitting to a major operation a patient has the right to this added knowledge which allows both he and his surgeon to estimate much more accurately his chances for immediate recovery from the operation.

This routine examination of the blood serves another very important purpose. Not infrequently following upper abdominal operations, especially those on the gall-bladder, patients fail to rally, become desperately sick, develop a rapid pulse, a high temperature and die. Classified according to blood chemistry these patients fall into two separate groups, one known as the acidosis group, the other as the alkalosis group. Now the clinical manifestations of these two groups are quite clean cut, but unfortunately in many instances these toxic conditions cannot be differentiated from each other until a blood chemical examination sets us right. In the first group, the acidosis group, we have a lowering of the blood sugar, and a lowering of the CO_2 combining power. While in the alkaline group, the CO_2 combining power in the blood is high and the chlorides are greatly reduced.

Now if we consider that 100 cc. of blood contain normally from 80 to 120 mg. of sugar and from 560 to 650 mg. of chlorides;

and that the CO_2 volume percent is normally from 50 to 60; is it not logical to include these various quantitative tests in our examination of the blood, especially for our more serious cases, and to conclude that if in a given case these figures differ materially from the normal, we are dealing with a patient at least predisposed to develop one of these two dreadful post-operative complications, and one who following the shock incident on a major operation, with an organism already below par, will fail to re-establish his metabolic balance?

For whether acidosis be of diabetic origin, or the result of insufficient carbohydrate intake "starvation," or as Ross, Davis, Langfelt and many other investigators believe, the result of diminished adrenalin concentration in the blood, which in turn causes a diminished glycogenic function of the liver, or a diminished glycogenic function the direct result of reflex operative shock; it is most reasonable to suppose that a lowered blood sugar and lowered CO_2 volume percent before operation means a patient predisposed to develop acidosis and that it is our duty to raise that blood sugar to normal before proceeding with operation. I believe that in several cases I have been able to prevent post-operative acidosis by following this rule; in one case delaying the operation two days to raise the blood sugar back to normal. The same will undoubtedly hold true for alkalosis which is fortunately rarer, but much more difficult to control.

In conclusion we may say therefore:

I. That the pre-operative examination of a patient to determine his physical condition before operation is often inadequate.

II. That patients who fail to rally from an operation do not as a rule succumb from the disease that necessitated the operation, but from disease in other organs.

III. That the vital organs of the body are the lungs, kidneys, heart and blood.

IV. That it is safe to assume that if these four organs are normal, the patient will survive his operation in the vast percentage of cases, and that the immediate prognosis depends directly on the degree of functional variation of these organs from normal. The nearer the normal the better the prognosis, the farther from the normal the more unfavorable the prognosis.

V. That all patients who do not come under the classification of emergency cases, should have a blood chemical examination done, and the more serious their operation the more necessary is this examination.

I wish to take this opportunity of thanking Dr. Herman Gessner, our chief of staff, for the encouragement he gave during the time I was gathering material for this paper and for the unlimited opportunities of selecting cases from his ward at Charity Hospital.

DISCUSSION.

Dr. H. B. Gessner (New Orleans): I think Dr. Cassegrain's paper is very timely. We have all had the experience of doing effective operations on patients and seeing them die. We have seen patients dying after operation from conditions that might have permitted them to live for months and perhaps years. As you know, sometimes there are very important family and economic reasons for prolonging life for even a few months. I think it is a matter of great importance to determine the exact status of patients.

I have been much impressed with the care taken at the Mayo clinic. I don't mean to say that other operators don't do it, but the method there of labeling the case as Risk No. 1, 2, 3 or 4, has impressed me a great deal. I think there are many factors we haven't learned to estimate yet. Dr. Cassegrain spoke about the heart, lungs, kidneys and blood. Sometimes patients die and we can't blame the death on anything wrong in any specific organ. I believe he has opened up a subject that is a very large one. I think we have just begun to explore this line; we ought all to bear this in mind and try in our work in the future to get as much of a pre-operative estimate of a patient's condition as we can.

Dr. Hirsch (Baton Rouge): There is one thing that has impressed me in the study of the blood chemistry in relation to operative risks and that is, it is not always the exact reading of a nitrogeon retention product but when we have a ptaient that

is a bad risk for that reason, if we make repeated examinations of his blood chemistry when the patient is under proper treatment to put him in a better condition for operative work, sometimes the high readings drop but do not drop to a normal level. I have found that when they drop to a certain point and stay there what we call a stabilization of the patient occurs and even though the nitrogen retention in the blood stream is high the patient may still be a good risk for major surgical procedure.

Dr. Cassegrain (in closing): Mr. Chairman, I have nothing further to add except to thank the gentlemen who discussed the paper.

ESSENTIAL ARTERIAL HYPERTENSION.*

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There is no problem of internal medicine that is more important of solution than the cause and treatment of hypertension.

From a preventive point of view, the recognition of the condition in its incipiency is essential, and in presenting the subject it is with the hope that it will elicit a free discussion to the end that some good may come of it.

The physiological factors that maintain and govern the arterial pressure are the ventricular contraction, the elasticity of the arteries and the resistance in the arterial field.

The role played by the arteries in maintaining circulation is great, and as it is stated by Howell, "almost as much blood is propelled forward as during ventricular contraction." Therefore, in disease, anything that may alter these factors will increase the pressure. In nervous individuals and during examinations the pressure may be raised on account of the excessive output from the heart; this is also true in aortic regurgitation. However, the permanent cases of hypertension are usually due to changes in the arteries and to increased resistance in the arterial field.

The question first arises, what is hypertension? The old statement that the normal systolic pressure is 100 plus the age of the individual will give much too high a reading. Most clinicians accept a systolic pressure of 120 at 20 years of age and with the increase in years a progressive rise.

Faught adds .5 mm. for each subsequent year. However, Fisher's rates based upon 50,000 insurance examinations allows an increase of .34 mm., and no doubt this is more nearly correct, which will give a pressure at age 40 to 44 of 128 mm.

Fisher's table:

Age period	Total cases	Average
15-19	880	120
20-24	3,920	122
25-29	5,892	123
30-34	6,343	124
35-39	7,146	126
40-44	13,849	128
45-49	9,537	130
50-54	5,294	132
55-59	2,379	134
60-64	680	135
65 and over	201	136

Hypertension should be said to exist, according to Fisher, "when a persistent systolic blood pressure of about 12 mm. above the average for the age would seem to indicate the limit of normal excess variation in man."

Vaquez states: "Hypertension may be said to exist when the pressure exceeds 160 mm. in the male and 150 mm. in the female. The diastolic pressure does not go up by a fixed ratio with the systolic, nor is there a steady increase with years. The table computed by Janeway may be considered as correct although slightly high.

*Read before the Mississippi State Medical Association, Jackson, May 11-13, 1926.

Normal diastolic pressure in 128 cases (Janeway):

Age period	Average
10-13	80
20-29	85
30-39	85
40-49	85
50-59	90
60-69	90

The hypertension cases may be classified as renal and non-renal.

To the non-renal belong the vascular, idiopathic or essential hypertension termed by Sir Clifford Allbutt hyperpiesis, which after all is the Greek term for high blood pressure. In these conditions the hypertension antedates any renal changes.

The renal types are preceded by a nephritis and are the effect of changes in the kidney. In this paper it is with the former that I wish to deal.

Essential hypertension in recent years is considered a clinical entity and not as formerly a pre-albuminuric stage of nephritis or "latent arteriosclerosis" or as thought by Hachard a "pre-sclerotic stage of sclerosis."

The cause of essential hypertension, at present, is not known. However, a number of causes may enter into its production. It is a disease of middle life, most frequent between the ages of 40 to 50. According to Janeway it is more frequently found in men than women and with the great proportion of 75% in men. However, Christian does not share this belief, having found it about equally divided.

Infections, focal and general, have been credited as a cause. Christian finds "that the evidence of a time or causal relation to infection is slight." Thayer, however, found in a series patients who had had typhoid fever the pressure was greater than in a control series. Contrary to what might be expected syphilis can not be considered to be a factor.

Endocrine imbalance evidently has some influence; especially is this so at the menopause, with a decreased activity of the ovary or from over activity of the thyroid. However, while hypertension accompanies hyperthyroidism, yet the high basal metabolic rate does not accompany hypertension.

Heredity certainly is an important factor. How often have we seen members of the same family in the 4th and 5th decade of life all succumb to cerebral hemorrhage or like diseases. O'Hare among 300 cases of essential hypertension found a family history of apoplexy, heart disease, nephritis, arterio-sclerosis or diabetes in 68 per cent or almost twice as many as in a control series of similar age. Osler said what might be called physiological arteric sclerosis depended "in the first place upon the quality of the arterial tissue 'vital rubber' which the individual has inherited and second to the wear and tear to which he has subjected it."

The part played by alcoholic beverages has been defended and condemned and we look for statements from a country where it is more plentiful than here. Lian noted arterial hypertension in one-fourth of the French soldiers between age 40 and 45 who had been constant drinkers of large quanties of wine while only one solider in sixteen who were moderate drinkers had hypertension.

Certain metabolic disease conditions as obesity and gout accompany hypertension and may be considered to have a common cause. Overeating, meat eating, high living, are causal factors in these diseases as well as in hypertension.

Mohler found that forty-five to forty-six patients who had high blood pressure and diabetes were obese and concluded that "obesity frequently favors the development of sclerotic changes in the body, which are capable of producing an increase in the blood pressure and a diminished ability of the body cell to utilize carbohydrates.

The cause of essential hypertension may be considered an intoxication, which intoxi-

cation may be very manifest as in the acute hypertension of eclampsia or acute lead poisoning. They are evidently in the nature of pressor substance in the blood, acting to produce a constriction of the vessels and an acute nephritis which usually with the elimination of the cause, clears up.

In chronic hypertension the pressor substances act for a longer period and probably in smaller quantities. There is good proof that these are the split products of protein metabolism. With this assumption, Majors and others have identified methyl guanidin a normal constituent of the urine experimentally to increase the blood pressure of animals when injected into them. He also found that in primary hypertension and in those of nephritic origin that there is a deficient excretion of this substance.

In a case of chronic nephritis, with a high output of methyl guanidin, the pressure was normal. While this evidence is not conclusive it is certainly strongly presumptive. The wear and tear of a strenuous life is certainly a strong casual factor.

PATHOLOGY.

During the early stages there is a functional vaso-constriction particularly of the smaller vessels. With the continuance of the pressure the vessel is strengthened to resist the strain by a thickening of the middle and outer coats with a decrease in the elasticity of the artery proportionate to the thickening and fibrous change.

Vaquez very aptly says "sclerosis of the vessels follow hypertension as the shadow follows the body." And Christian sums up the pathologic changes: "If hypertension persists, sooner or later one is able to demonstrate that changes will occur in the larger vessels, arterio-sclerosis; that the heart will hypertrophy and heart failure ensue, myocarditis; that renal insufficiency will appear, chronic nephritis."

The heart, due to increased work, hypertrophies, which as the work becomes more onerous and the heart less able to cope with the burden, dilatation takes place with the incident decompensation of the valves.

The kidney, in the early stages shows only slight thickening of the capillaries and a few atrophic changes in the glomeruli and in some early cases autopsy often shows that the kidney is perfectly normal.

As the process progresses, the kidney becomes swollen and red with numerous sclerotic glomeruli and tubules, the pathology at this stage combining the condition of degenerative arterio-sclerosis and chronic nephritis, the result of hypertension rather than the cause.

The retinal arteries are tortuous and show hemorrhages, indicating the changes taking place in the arteries of the brain.

Hypertension may persist for a long period of time without disturbing symptoms and be found only upon routine examination by the spygmomanometer. Unfortunately there is no one symptom that is constant in hypertension but several taken collectively are suggestive. One of the earliest, most common and most constant symptoms is headache, which is usually in the occipital region, sometimes described as "lead cap" coming on in the morning and leaving before afternoon; in later cases it is constant and severe.

Dyspnoea on exertion, as walking up stairs, patient easily fatigues on slight exertion, vertigo, dizziness, pain constriction in precardium, irritabilty, nervousness, indigestion, memory not quite as good as formerly, nosebleed, metrorrhagia in women, impaired vision, aphrasia due to spasm producing cerebral anemia, nocturia and many symptoms depending on the "territorial distribution" of the affected vessels.

The diagnosis admits of two errors, "the one in not seeing it when it exists, the other in failng to recognize it when present."

The blood pressure, after exercise or taking a full meal may be elevated, also in

nervous individuals there is a wide fluctuation, therefore it is necessary to take several readings at each examination and have the patient return for observation on alternate days, and what might be considered hypertension will clear up. The systolic pressure in essential hypertension in the early stages is very variable, excitement causing a rapid rise of 30 to 40 mm. while rest will bring it back to its former level.

The sleeping pressure is lower, but distinctly higher than in normal individuals' waking hours. In nephritic types, this fluctuation does not exist and they have a tendency to be stabilized.

The urinary findings are of great importance in the differential diagnosis of the renal and non-renal types; this is necessary both from the standpoint of prognosis and treatment. In essential hypertension the urine is quite normal or at most a trace of albumin with a few casts and is usually transient in the early stages.

The phenolsulphonephthalein functional test is of value, for in essential hypertension it is normal or nearly so; also the blood nitrogen is normal or only slightly elevated, while in chronic nephritis there is a deficient pthalein excretion and a high nitrogen retention.

For the general practitioner, the urinary concentration tests are of value, taking the specific gravity and determining the quantity of the excretion of the night and day urine. In essential hypertension, the concentration is normal and there is a normal difference in quantity of excretion, the night's urine totaling 400 to 500 cc. However, in chronic nephritis there is a fixation in amount and specific gravity, the gravity about the same for night and day urines, and the amount approximately the same.

The prognosis of essential hypertension is a distinctly different proposition from the hypertension of nephritic origin. We know that we may give a more favorable outlook. Many of the patients live with a high pressure from 12 to 20 years; however, in any case, it must be considered to shorten their expectancy.

The main point in determining prognosis is not the height of the pressure itself, but the condition of the heart, kidneys and blood vessels and the patient's reaction to treatment. The diastolic pressure must be taken into consideration in making a prognosis; particularly is this so in its ratio to the systolic; this ratio usually running about one-half of systolic in hypertension. A normal diastolic with a relatively high systolic shows that the heart still has power to carry on.

It is the case with the high or rising diastolic, with a stationary or falling systolic with its incident diminished pressure pulse that betokens the advent of cardiac failure. Tileston states that the prognosis is bad when the diastolic pressure is permanently over 120 mm.

The cause of death according to the statistics compiled by Janeway, showed a greater number of deaths are from cardiac failure and from the height of the pressure drew conclusions as to the probable cause of death. Those suffering with a very high pressure of 220 died of apoplexy or pulmonary edema, while in deaths from cardiac insufficiency and angina the pressure was lower.

The prognosis in males is obviously more serious than in females due to the greater strain of life and the fretting against conditions and inability and willingness to follow advice.

The examination of the eye grounds are of great prognostic value, due to the intimate relationship of the retinal arteries to those of the cerebral.

The treatment of essential hypertension is treatment of the patient himself, rather than any therapeutic regime. Unfortunately these cases are rarely seen in the

earlier stages, that is, before symptoms manifest themselves. It is at this time that most can be accomplished.

Sir Cliéord Allbutt states "if we can catch hyperpiesis early and keep at work against it, it can be cured more often than not." However, after the pathological changes have taken place in the arteries and heart, and nature has readjusted itself to the additional work and new conditions the pressure becomes compensatory and to try to establish the former equilibrium is futile.

The more common use of sphygmomanometer when it comes to the routine examination will enable us to find more of these cases early and save many lives. Our life insurance companies are doing a great good in educating their policy holders to yearly examinations of urine, would it not be good to add blood pressure determination?

We should be as diligent in prophylaxis in our metabolic diseases as in our infectious ones and teach our business and professional men that it is just as necessary for them to strike a balance physically as financially and as the auditor of their accounts we will find many cases in which we may save years and comfort to them.

When we determine a high pressure it is necessary to have our patient take an inventory of his daily habits to determine the full consumption and waste, to ascertain his relation to business and surroundings. Oft times a reduction in the diet, the shifting to second gear with a daily relaxation from business and an afternoon of recreation on the golf course or other things will take him off of his high mental strain.

Unfortunately we do not see the majority of our patients when prophylaxis treatment will suffice, but he will come to us complaining of headache, vertigo, irritability, failing memory, dyspnoea on exercise, fatigue, nosebleed, nocturia and in women, headache, dizziness metrorrhagia at this stage, the stage of more or less permanent hypertension.

DIET.

While no special diet has any curative effect, there is no doubt that a low protein diet is beneficial. Allen has reported great good from elimination of salt from food; however, this is not generally accepted as of great value. Nevertheless there should be a lower ingestion of salt and only enough added to the food to make it palatable. As these patients are usually heavy and rapid eaters they should be instructed to eat slowly and sparingly and avoid an excess protein for intestinal putrifaction and the consequent throwing of greater work on the kidneys.

At the time of impending crises it might be expedient to use the fruit juice or Karrel Diet, care being taken not to continue this too long. In the obese, a gradual reduction by diet is necessary.

REST AND RECREATION.

As has already been suggested, rest is the most valuable adjunct to treatment. While we can not get actual rest of the vital organs we can relieve the embarassed heart, the overworked kidney, the burdened brain of some of their loads by proper exercise, diminished diet and mental worry.

The patient should have daily rest for an hour after meals and while physical rest is essential, yet there are numbers who need mental rest, taking them away from the worry of business, shortening their working hours and prescribing recreation in the open; particularly is this true of the obese with sedentary habits.

The elimination of the bowel should be watched, and a daily evacuation be secured. The clothing should be sufficient to prevent body chilling and the kidney not given too much fluid to eliminate.

Drugs are sometimes distinctly harmful and should be used with care and with full knowledge of the end to be accomplished.

The use of the nitrite group has been much abused in treatment and can be expected to do no permanent good, yet during the stage of circulatory embarassment may be used to great advantage.

The administration of corpus luteum or ovarian substance in the hypertension of the menopause according to Hopkins and Riesman is of benefit.

There is no contra-indication to the use of digitalis in hypertension and it often brings down the diastolic pressure and keeps the relation between the pressure more normal and is the one drug to be depended on in the cardiac complications with impending danger of uremia.

Venesection in the very high pressure of the menopause, removing enough blood to bring the pressure back to 150 is oftentimes a safety valve against cerebral hemorrhage; also is this true in men with an excessive systolic pressure.

The uses of calcium chloride, para-thyroid and the liver extracts recently brought out by Majors and McDonald are yet experimental but great good is hoped to come from them later.

All foci of infection should be sought and eliminated. The use of electricity in its various forms is still experimental.

CONCLUSION.

In examination use the sphygmomanometer more frequently, and find the condition when there is yet time. We should revise our ideas of what hypertension is, not putting our limit of normal pressure too high.

DISCUSSION.

Dr. G. W. F. Rembert (Jackson): It is a privilege to discuss Dr. Howell's paper. I had an opportunity to read it, and it certainly is complete in every detail. There are one or two points I would like to mention.

The classical causes ascribed to high pressure have been four: arterio-sclerosis, nephritis, toxins and endocrines. I think the question of arterio-sclerosis is one that play a role similar to that of nephritis, on which I will quote from a paper I read a year ago. While the impression has been that it is the result of nephritis, yet for many reasons it would appear that the high blood pressure causes the nephritis. At any rate, there seems to be nothing constant in the relation. It may occur in all forms of nephritis, or it may be absent; it may appear in cases arterio-sclerosis, may be absent; it may appear to be the cause of urinary obstruction, or it may be absent; it may appear in mental conditions, or it may be absent; excessive use of carbohydrates have been thought to be the cause, but it is not apparently caused by the gall-bladder, or by increased vasomotor tension.

Taking up the work that McDonald is doing, I heard him in Detroit a month ago and at that time he reported his results at the clinic of St. Catherine's, Ontario. He said that the hydromines and chloramins were not responsible for the results brought about in liver extract, that these results were transient and had to be reached frequently. He further stated that they were not in position to give further data, since they are still experimenting.

I think very important is Hubig's work on the effect after it reaches 25 per cent. He found in a series of animals, for over 500 days, that in most rabbits he was able to bring about casts and albumin when the protein content was 25 per cent. of the total food. When it reached 32 per cent. every animal showed many casts, and at 39 per cent. there were gross kidney changes. Incidentally he was able to work out three that brought about very rapid changes, one in which he got gross hemorrhage from the kidney and marked tubular degeneration, and he was able to destroy the life of the dog by feeding him cystin. When you consider the work of Newberg in bringing about frequent kidney changes, and follow the work of McDonald in getting liver extracts and regarding the hypertension as probably due to liver insufficiency, to the end products of carbohydrates and fats and not the proteins that have end results in ammonia acids; then it looks as though proteins were factors in the production of renal and liver changes that may account for hypertension.

As to the fixation of the systolic pressure, Slader described last month some work he is doing in Howard hospital, New York. They found in some cases with high systolic pressure that if they had the patients exercise and then took the pressure there would frequently be a drop of from 15 to 30 points in the systolic pressure; in other cases it was fixed. The cases that showed a fall had a chance, and those in which it was fixed did not live long.

Allen's work on the effect of sodium chloride has been mentioned by the doctor. He stresses the elimination of sodium bicarbonate.

Dr. N. C. Womack (Jackson): The routine blood pressure of children and young people has not proven to be very interesting, although there are some observations I would like to make. The information we derive is of relatively little value as compared to the adult. However, in such conditions as chronic nephritis, pyelo-nephritis, or any condition in which there is impairment of kidney function for a great length of time, we may have high pressure the same as in an adult. That is, however, more or less rare. The systolic and diastolic spread is small in children as compared to the adult, and this would indicate a lower reserve power, which is natural in the young.

There is one point I have found, and that is that these young children who have had scarlet fever in years gone by seem to run a higher blood pressure, say 10 to 15 points higher, than the child who has never had it. We know that a scarlet fever kidney is a bad kidney—in time it will play out. I have noticed that and I would like to know if it is the experience of other men. We used to think in syphilis in children we would find high blood pressure, but as a rule we do not. Ninety eight per cent. of syphilis in children is hereditary. Endocrine upset in children does not affect the blood pressure. Of course we hardly ever have hyperthyroid in children, usually it is hypo. It might be affected slightly by being lowered.

This is a wonderful paper and we ought to read and study it carefully, but as far as blood pressure relates to children it is not very important from a medical sense.

Dr. P. W. Rowland (University): It requires very wise discrimination, in my judgment, to approach the proper evaluation of the meaning of arterial hypertension. I can not quite agree with Dr. Howell that arterial hypertension is a disease. I think it is not. So far as I am able to discover it is not a pathologic entity; in other words, there is no definite pathology for arterial hypertension.

In my care of the students at the University in their regular physical examination, I have had occasion to observe, very carefully, their arterial tension, and while, as said before, I am not prepared to say that arterial hypertension is a disease, yet I regard it as a symptom just as important as the most pronounced organic lesion anywhere in the organism.

To illustrate my point I shall give you just two concrete cases with results. In the first place the study of arterial hypertension should be in age groups. We will not be able to understand it until we do this. Arterial hypertension is quite a different proposition in a man seventy-five, in one of forty, and in one of eighteen years of age. We can, in the man of forty and above, usually determine the cause. But in the age group eighteen to forty, it is, on the other hand, quite indefinite. In this group there is a wide range between the accelerator and inhibitory mechanisms, and one can stand for a long time a considerable elevation of arterial tension without damage; it is in these cases that our diagnostic acumen is taxed to the utmost to discover the underlying cause.

I have in mind a young man, a medical student, twenty years of age, taking part in athletics, and, so far as he knew, as healthy as any man on earth, never sick, his habits regular, a good student, no symptoms whatever to lead him or anyone else to believe he was sick.

In our regular routine examination it was discovered that he had hypertension—220 systolic. A man twenty years of age—not a symptom to indictate it. I could find no cause for it. I place him in the hands of some of the best clinicians in the country, and nothing was found to account for it, yet it was a permanent hypertension. That was seven years ago—the young man is dead, dying suddenly. Now, in that case it was a very important entity.

Another case in the forty age group, a man whom I had known for twenty-five years, never sick, a man of temperate habits, a man who played golf and took regular exercise and extraordinary care of his body—a Christian gentleman engaged in high class type of work. He applied for life insurance. Arterial hypertension was found—225 systolic. We were astounded. A most thorough examination by several splendid diagnosticians revealed nothing to account for it. For eight years I have had him in hand, under careful diet, regular exercise, and at intervals taking various forms of hydro-and electrotherapy. During this time we have been able to keep his pressure within an average of 170. Recently he consulted a physician while visiting in a certain city, not with reference to his high tension, but this physician found it out, and made light of it, telling him that it was psychological, meant nothing and to go ahead and think nothing of it. This gentleman was sensible, but advice like this had its effect in causing him to relax his vigilance as to his habits, and three months ago he had a cerebral hemorrhage and is now a hemiplegic.

Gentlemen, I warn you, it will not do to treat these cases carelessly. Arterial hypertension in the early years of life is extremely important, and

should be managed skillfully, but not with drugs, they are useless.

Dr. G. A. Hendon (Louisville, Kentucky): I do not know when I have been more edified than both this morning and this afternoon. It happens to be the first medical session that I have been privileged to attend for a long period of time, my work being in surgery, and I have been astonished at the large amount of important information that I have been able to glean from these discussions that apply to the surgical phase of disease.

In discussing this question of hypertension, which is important to both the surgeon and the medical man, I want to say that I believe the problem can be reduced for rapid solution down to one thing, and that is that the hypertension is due to resistance. When you have hypertension it is up to the investigator to find out where the resistance is. I mean resistance in the circulatory system. That resistance can come from change in character of the arteries, and changes in the tissues of the arterial wall. You take an artery with a wall where the elastic tissue has been destroyed and substituted by connective tissue, and you have established there an enormous amount of pathological, abnormal resistance. A good comparison is to take a given amount of pressure and force water through a rubber hose—see how far you can throw it. Then take the same amount of pressure and endeavor to force water through a canvas hose, and see how far short it will fall. Consequently, in the case of the artery, the blood when it reaches a certain point must overcome the resistance resulting from the loss of elastic tissue.

I would think of hypertension in terms of resistance, and when confronted by any case I would search for the resistance. It might be in the kidney, for we know a diseased kidney shows enormously increased resistance because of the current of blood through the organ. The resistance might come from alteration in the size of the vessels. Where an artery has its lumen reduced by the over-activity of the constrictors then the tension will be correspondingly increased. There is your resistance. It is up to you to investigate and search for the source of this alteration in the lumen of the vessel. That can come about in various ways. I believe that some of these unexplained cases of hypertension are due to some upset of the endocrines; and then we know that hyperactivity of the vasomotor structures reduces the size of the lumen, and that will cause resistance.

A third source of resistance is alteration in the constituents of blood. When blood is impoverished, or is poisoned, or shows any extraneous principle, it requires a great deal more force to send it through the arteries than when the blood is normal. That is where we get hypertension in cases of puerperal eclampsia, or in any kind of impoverished or poisoned condition of the blood, the endothelium that lines the artery seems to have a revulsion against the contact of abnormal blood. Therefore you have this third source of resistance. If you think about hypertension absolutely in terms of resistance, and then try to figure out where the resistance comes from, I believe the problem will be very much modified.

Again, you can have hypertension on account of increase of propelling force. If the heart has become hypertrophied and exerts an abnormal amount of force, there you have hypertension again. The heart muscles do not become hypertrophied unless there is resistance to overcome, and that brings us back to the point where we are simply grappling with the problem of resistance.

We find in surgical work that we can reduce the cerebral tension or compression by the administration of magnesium sulphate intravenously. This has been brought out by Dr. Dowman of Atlanta. With the brain exposed he administers a 25 per cent. solution of sulphate of magnesia, 10 cc. intravenously, and the brain can be seen to recede from the interior skull. That is becoming a very valuable adjunct in the treatment of compression of the brain on account of the lowering of the enormous amount of tension. Whether that would apply in general medicine, I do not know.

Dr. John B. Howell (closing): All I want to say is that this condition should be regarded as a clinical entity. It does not go into the class of nephritis, it does not fit a diagnosis of arteriosclerosis, and therefore these things are the end results of hypertension and it is a clinical entity which should be sought and gotten rid of.

Dr. Rowland contends that the pressure goes up with age, which is partially correct, but yet we find many of them who have reached 60 or 70 and have a pressure of 128, so it is not a question of degeneration of age; it is the degeneration of disease.

From a prophylactic standpoint which is the only treatment we have at present, whenever a patient of 40 or over comes for examination, no matter how trivial the malady a blood pressure examination should be made and by so doing we will find many who have a high pressure. It is also necessary to have a definite idea of what we are going to call hypertension. A pressure of 160 in any individual regardless of age should be regarded

as hypertension, after of course several examinations made on different days. When the symptom hypertension is found it is necessary diligently to seek the cause, for it may not be found in the kidney nor in the degeneration of the vessels themselves but if allowed to continue will cause a damaked kidney, heart or blood vessel.

LOCALIZED INFLUENZAL AFFECTIONS OF THE HEAD.*

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With those affections of the head usually attended by mixed infection and suppuration both practitioners limiting themselves to the special senses, and the general practitioners, have had ample opportunity to become quite familiar since the epidemic of 1918.

In speaking of localized influenzal affections of the head I wish to refer to the suppurative conditions only to such an extent as will serve to indicate to you the process by which I was led to form my deductions in relation to another class of affections which I have come to diagnose and treat as influenzal.

The middle ear and its drum membrane in their varying reactions to the bacillus of influenza, or its toxins, affords us the greatest enlightenment on the reaction of human tissue to this organism. In the early days of the epidemic it was usual thing that in those cases of influenza, in which the ears were involved, on examination the aurist was confronted with sero-sanguinous vesicles, arising from either the canal wall of the drum membrane, or both. Rupture of these opened the way to the drum membrane, the incision of which usually liberated serum from the middle ear. And it was the rule in those cases during the high virulence of the epidemic that the middle ear infection became mixed, and suppuration ran its course. As the virulence of the strain responsible for the epidemic began to wane, the frequence of mixed infection and suppuration became less; so that more and more there was an increase in the percentage of cases which resolved after only a serous middle ear discharge. Of the maxillary antrum the same has been true according to my observation, but it was very much later; and it was only quite recent that a case was observed to manifest only a hemorrhagic aspect without going on to the suppuration of mixed infection.

Let me call your attention more closely to a manifestation of the bacillus of influenza already referred to which to me is peculiarly unique. I refer to the fact that we find it affecting the middle ear and the epithelium of the drum membrane and canal simultaneously. It evidently is blood borne and hence is not confined by the structures which to other organisms are barriers; and it is this observation which has influenced me most in laying at its door a number of obscure and varying conditions.

The missing link, as I might term it, was supplied by a case of myringitis, first treated during February, 1923, and so oft recurring during the subsequent three or four months, as to almost deserve the term of chronic myringitis. This case was an infant four months of age. The chief complaint from the mother was that it cried all night, and it was attended by little or no elevation of temperature. The examination of the drum membrane showed only slight variation from the normal, exhibiting neither the typical picture of a retracted membrane nor of a bulging membrane. But in view of the fact that the condition had persisted for sometime and did not yield to the usual local applications to the drum membrane and intranasal medication designed to render patulous the eustachian tubes, incisions of the drum membranes were repeatedly resorted to. These incisions usually gave relief for about one night and when the mother could stand the crying no longer she would bring the child back and the incision would be repeated on the drum looking the most suspicious of progressing to middle ear suppuration.

After this had gone on for something more than a month, a neighbor of the mother suggested the advisability of consulting one of my

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confreres, which advice was taken without the traditional recourse to consultation. My confrere was impressed with the idea that the condition was the usual infection arising from adenoids, and advised operating for the removal of the same. To this the mother consented and the operation was performed, but to no avail; for the child was brought back to me about a month later with a full explanation from the mother of what had been done and the child exhibited the usual condition in one of its ears. By this time I felt that I had sufficiently gained the confidence of the mother to institute a policy more of the watchful waiting character, so that when the child was brought back to me with the drum membrane inflamed only in shrapnells and along the long process with perhaps a slight impairment of its translucency, I would refrain from incision and advised the mother to obtain what relief she could from the instillation of an anesthetic lotion and delay a day or two. And while the condition often went on to the point where the drug assumed a thickened and opaque appearance it was rare that incision ever liberated any unmistakable accumulation in the middle ear; and the few times that it did this accumulation never progressed to a frank suppuration.

When the summer of 1923 was well established there was a remission of this very distressing condition until February 6th, 1924, when there was a recurrence of the same condition. Up to this time I am sorry to say no more advantageous manner of combating the condition had suggested itself to me, and if there had been anything in the current literature to give enlightment on this matter my reading had been too superficial to discover it. So the little fellow was doomed to suffer more at my hands during the next four months, which brought us to the middle of May, when, so far as my knowledge goes nature again established its own immunity.

Previous to my service in a special senses hospital ending in the spring of 1914, serum treatment had been weighed in the balances and found wanting by some of my clinical chiefs; so that I had rather dogmatically refrained from any experimentation with such substances even after positive claim for their efficacy began to be made. But through association with some of my fellow practitioners who were inclined to be more open minded than I was, and were using the various bacterins and sera in cases that were frankly influenzal and complicated by affections of the special sense organs, I became convinced that these agents did produce definite results in at least aiding the patient to stage a recovery. And a little more than a year ago, I began the use of such substances rather freely, especially in those cases of ear affection which did not show a disposition to go on to suppuration; and the results had been so gratifying that when I was called to see another case of frank myringitis which exhibited the ear drums now very familiar to me, and whose mother declared most positively that he had not ceased crying night or day for the past three days, I was prepared to administer treatment with a great deal more confidence of bringing about a cure than I had felt in regard to the case of some two years before. This case also was an infant of four months age, and because I could not be positive of the evidence afforded by examination of the drum membrane I incised it; and while this gave relief from crying that night no middle ear discharge was observed and the continuous crying was resumed the following night.

The crying in this case had been very much in evidence for two weeks previous to the time I saw him, and although his discomfort was so great that he had cried continuously for the three preceding days and nights, there never had been any elevation in temperature. The night after the crying was resumed I injected one-half cc. of sero-bacterin in the arm; that night he slept well. The next night he did not sleep so well and the following day I repeated the dose of the sero-bacterin in the other arm. For three days and nights he was free of crying, and on the third night began again; then I explained to the parents my confidence that a more protracted course of the sero-bacterin would give relief. Upon their consenting I proceeded to give one-half cc. doses on alternate days until four doses had been given in the second course. There was complete cessation of the crying. The elevation of temperature during the administration of the serum was negligible.

Within the past year I have had occasion to observe about a half dozen adult cases complaining of ear ache whose ear drums and eustachian tubes on careful examination revealed no pathology; nor were there any foci of irritation in their teeth or tonsils to account for the pain. Bearing in mind the picture of gradual and consistent attenuation of the pathological changes occurring in and around the drum membrane under the influence of a more and more attenuated strain of the bacillus of influenza, it seemed reasonable to me to attribute this ear ache to irritation, influenzal in origin, of the tympanic branch of the facial nerve. Recently I have seen a few cases that have helped much in substantiating this diagnosis which to many of you doubtless seems far fetched. In these recent cases other and more superficial terminal branches of the facial nerve, to-wit: those spreading over the mastoid and those distributed to the scalp over the temporal and parietal areas, have evidenced the low grade pain and superficial tenderness of a terminal neuritis. These cases have without exception cleared up on the injection of sero-bacterin requiring without exception I believe, only one dose.

Three months ago I was asked by a medical practitioner to see a case which he thought had a labyrinthian involvement. The patient, a white man, age fifty-five, was confined to his bed on account of dizziness and some tendency to nausea. Two weeks previous while in conversation he became "giddy," as he expressed it, so very much so that he excused himself from the gentleman with whom he was in conversation. The giddiness was accompanied by nausea and vomiting so that he was forced to go to his home and remain in bed for a day, after which he returned to his shop and got along very well for one day at his work. His occupation is that of a tin smith. The second day of his return to work he became "giddy" while working at his bench, and this was accompanied by nausea and vomiting even more severe than two days before, so much so, that the family doctor was called to come to his shop. He was given aromatic ammonia and carried home and put to bed. After ten days of rest in bed and palliative treatment I saw him, still too much inclined to be "giddy" to get up; for he had made attempts to get out of bed and was forced to return each time. There was no nystagmus at all, nor was there then nor had there been any elevation in temperature. For evident reasons I did not think it advisable to try stimulation of his semicircular canals to try to determine the exact location of his disturbance. I advised the doctor that it was my opinion that he was affected with labyrinthian irritation and that the causation was influenzal. I recommended that he be treated with an injection of five minims of sero-bacterin for two successive days, and then continue the injection on alternate days, raising the dosage first to seven and one-half minims, then ten and continue the latter dosage. Six injections were given, at the conclusion of which the doctor pronounced the man cured, and he resumed work three or four days later.

In the beginning the blood pressure had been taken by his family physician and found to be 180 systolic. Diastolic not recorded. At the time of discharge of the case the blood pressure was again taken and then found to be 140 systolic. Diastolic not recorded.

On February 20th, this year, a white male, age 38, consulted me on account of tinnitus aurium of both ears, which had been present intermittently during the past ten months. During the past seventy days, it had been continuous, the left always worse, the right ear sometimes remitting. A few weeks previous his blood pressure had been found to be only 110 systolic, although he had a florid appearance and the doctor had expected to find the blood pressure elevated. This low blood pressure was considered a sequal of an attack of influenza which he had suffered about three months previous and from which he was not considered to have well recuperated because of too close and too energtic application to his business. His work is that of a salesman for a wholesale grocery and requires that he cover an extensive territory in an automobile. Although the blood pressure had improved to 130 systolic under treatment, no improvement in the above mentioned symptoms had occurred. Because of the existence of a heaviness and low grade neuralgic feeling over his frontal sinuses, which was not explained by the findings of intranasal examination, which syndrome I have often observed and diagnosed and treated as influenzal, the question arose in my mind as to the probability of there being a common causation of his frontal symptoms and the ringing in his ears. Being in complete possession of his confidence I told him that I was going to try a series of serum injections to see what effect it would have on the ringing in his ears. I neglected to state that examination of his drum membranes and eustachian tubes showed negative findings. On the 20th and 21st, each, I injected five minims of sero-bacterin and on the 24th, 28th, and March

3rd, I injected ten minims. After the second injection both the heaviness and tinnitus were improved. Three days after the third injection which was one day before the 4th, the tinnitus in the left ear was excessive. The next day it was entirely abolished and has continued so up to the present writing.

While I could recite to you the findings and results in a number of other cases, some very dissimilar from these in certain respects, I believe these will suffice to illustrate to you what I have tried to convey without incurring the risk of tiring you.

As to the question of specificity of action of any serum, bacterin, or sero-bacterin, I am not prepared to express an opinion. I have used a sero-bacterin because, according to my observation, the bacterin which is its most formidable rival in my locality, is without any efficacy whatsoever. A very well informed general practitioner friend of mine tells me that the use of typhoid vaccine in the hands of Miller of Chicago has produced the same results in the treatment of certain myalgias for which I have used sero-bacterin, designed to have a specific action.

DISCUSSION.

Dr. J. R. Hume (New Orleans): Dr. Jackson has just given us a very interesting phase of a very interesting condition. It seems as if the aural symptoms due to influenza are a good deal like an automobile; they change models every year. The type of cases that we see this year certainly is not the type of cases we saw last year. The aural symptoms of this recent epidemic have been as unlike those of last year as if they were different diseases entirely.

In point of frequency this recent epidemic has given perhaps fifty per cent more cases with aural complications than any previous epidemic that was noticed here, and the type of organism is evidently the thing that determines our symptom complex, whether it is the milder types like Dr. Jackson has shown us with myringitis or whether it be the more profound types of mastoiditis with the graver symptoms.

Just recently we have had five cases that showed some very unusual symptoms, and I would like to call your attention to these cases. They all began within three weeks of each other. All were seen at the ear, nose and throat hospital. They showed the usual symptoms in onset of an acute otitis media, showing a temperature of about 101 or 102, bulging drum. The drums were incised but the temperature did not decline. A serous discharge in the beginning gradually became freer. The laboratory report showed a non-hemolytic streptococcus. After two or three days when we usually expect the temperature to decline, the temperature continued. There were no clinical symptoms of mastoiditis over the mastoid. X-ray pictures showed only a very slight cloudiness and at the end of five or six days a typical septic temperature developed in each of these five cases.

There is such a little variance in the symptoms or in the temperature curve of any of them that I have classed them altogether. Believing that there certainly was a mastoid involvement they were all operated on and found no coalescence of the cells, no pus in the mastoid cavity proper, but a lateral sinus thrombosis in each case. Two of them, after the sinus wall was removed presented pus about the sinus itself with no pus found in the mastoid cell.

The blood picture as regards the white cells was very much as a usual blood picture in an infection, but the red cells showed an almost immediate diminution from five down to two and one-half million, in three or four days, with a decrease in the hemoglobin from eighty to sixty-five. These cases were unusual and as I have had so little experience with the sero-bacterins was curious to know if sero-bacterins would have been of value as a therapeutic measure in their conditions.

Dr. N. F. Thiberge (New Orleans): Gentlemen, I want to confirm the experience that Dr. Jackson had with the serum but I want to put a different interpretation to that. I have had similar cases where the patients were on the point of being submitted to an operation for some influenzal complication, some sinuses that were blocked or the mastoid threatened, where the operation was avoided by the use of vaccine. But the results of this work I think are susceptible of different interpretations.

I have done a good deal of work in hay fever, specific pollen injection, and then some specific vaccine injection, and in the back of all that the impression seems to be forming that the non-specific protein is the element that works. In other words, instead of using the sero-bacterin, influenzal sero-bacterin, if we had used peptone I think the result would have been the same. We are using less and less of a dose of the vaccine now. The object to be attained is always kept in mind. The antibodies are not supplied with the serum or with the vaccine that we inject but our only object is to stimulate the antibody formation in the patient himself, and I think finally that will be the only conclusion to be drawn.

I don't advise waiting too long for operations but I think in chronic cases or subacute cases it is wise to use a few doses of non-specific protein before an operation is performed.

Dr. O. C. Cassegrain (New Orleans): I have had little experience with ear, nose and throat work, but it struck me as I listened to these gentlemen that possibly the explanation of the benefits derived from the use of sero-bacterin is very much on the order of the benefits derived when we inject a foreign protein. For example, not long ago Dr. Gelhorn, in speaking of localized infections spoke of the benefits to be derived from injecting foreign protein like milk, and it just struck me as possible that the same benefits are derived because of the foreign protein used in these particular cases. I just would like to know if any of the otolaryngologists here today have used milk or any other protein outside of the bacterins in the treatment of these infections, and if they have, what result was obtained.

Dr. Jackson (in closing): In that portion of my paper which I was not able to read on account of the limited time I have anticipated much of the discussion of the subject, and if I may be permitted to conclude the reading of the paper it will, I believe, satisfactorily answer the discussion. (Finished the paper.)

ECTOPIC PREGNANCY.

J. MOSBY ALFORD, M. D.,
OKLAHOMA CITY, OKLA.

Ectopic pregnancy is of modern diagnosis. It was unknown to ancient medicine. The possibility of conception taking place and the partial or complete development of a fœtus outside the uterine cavity was never suspected prior to the tenth century. The first recorded case is by one Albucasis who practiced in Spain about the middle of the eleventh century. He reports having seen fœtal bones suppurating through the abdominal wall of the patient. I have read the account which that venerable physician gave of this experience, and while he recognized the bones as being the sketal remains of a foetus, I do not believe that he suspected that they probably obtained their growth outside the uterus. The first reported recognition of ruptured tubal pregnancy is by Riolan, in 1604. This patient was four months pregnant with her eighth child when she was seized with violent pains, with syncope, and died early the next day. On post-mortem there was found a foetus in the right fallopian tube. The uterus was uninjured and empty.

Dr. W. W. Harbert in 1849 first suggested immediate laparotomy for ruptured tubal pregnancy. No one had the courage to accept his suggestion until in 1883 Lawson Tait performed this first operation. His patient died but the observation made by Tait convinced him that immediate operation was the best treatment, and out of his next forty patients he lost only one; a record that has not been surpassed even to this day.

FREQUENCY.

The ratio which prevails between normal and ectopic pregnancy is difficult to determine. Our better diagnostic ability has taught us that it is much more frequent than was formerly supposed.

In the city of Philadelphia where vital statistics are kept quite accurately, it has been estimated that about one out of every three hundred pregnancies is ectopic. I believe this estimate to be quite conservative. DeLee states the condition occurs more often in the city than in the country. If that eminent authority had said it was more often *diagnosed* in the city than in the country, he would have been more correct. I believe there are many cases of ectopic pregnancy that terminate by early tubal abortion, or even rupture, and the product of conception is absorbed by the peritoneal cavity, and the patient never even consults a physician, believing that she has only suffered a delayed menstruation.

Case records show that both tubes are involved with equal frequency and there are several authentic cases recorded in which it occurred simultaneously in both tubes. There has even been a few cases reported in which tubal pregnancy coexisted with

normal pregnancy. It is interesting to note just here that veternarians tells us that ectopic pregnancy has been found in domestic animals.

CAUSES.

Extra-uterine pregnancy is due to some interference, or obstruction to, the normal passage of a fertilized ovum into the uterine cavity. It seems that all observers now agree that the ovum is fertilized before it reaches the uterus. The ovum may be arrested in its descent in either the ampulla, the isthmus or the interstitial portion of the tube. Dr. Polak, of Brooklyn, says that the occurrence at these points bears an almost constant ratio of 76, 21, and 3 percent respectively.

In order to avoid much repetition, I am going to ask that we include ovarian pregnancy with tubal, as the end results are practically the same. For the same reason I will ask that we regard tubal abortion as being the same as tubal rupture.

TERMINATION.

The terminations of tubal pregnancy are primary and secondary. (1st) The ovum may die in the tube and be absorbed or form a tubal mole. (2nd) The tube may rupture into the folds of the broad ligament or into the peritoneal cavity where it may die and be absorbed, or else becoming infected, undergo suppuration. Should the embryo survive rupture it may continue to grow to part or full time gestation. In interstitial tubal pregnancy the foetus may be gradually extruded into the uterus. The secondary termination of tubal pregnancy is where the embryo survives rupture and the placenta attaching itself to contiguous structures, the foetus survives to approximately full term. At the end of this full term there occurs a spurious labor in which the woman has pains closely resembling normal labor; the foetus dies and becomes infected producing suppuration, or else, becomes a fatty mummy-like form known as adipocere, or else a calcareous hardened form known as lithopedian. These lithopedian formations have been known to remain in the abdominal cavity for many years before something would develop to cause the woman to seek relief by its removal.

PATHOLOGY.

Briefly stated, we might say that the pathological changes are just about those we would expect to occur depending much on the time, and place, and method of the ultimate death of this foreign body which has intruded where it was unwanted and unwelcome. For when the fertilized ovum fails to reach its normal habitation in the uterus, it becomes a true parasite and in its struggle for existence usually works its own destruction. Tubal rupture usually occurs before the eighth week and practically always before the twelfth. The most interesting pathology takes place in the uterus itself. The body of the uterus proceeds at once to enlarge but not in proportion to the term of pregnancy. There is formed a true decidua in the uterine cavity. This is an instance of where pathology perpetrates deception upon physiology. The uterine mucosa responding to the stimulus of conception makes ready to become the host of a guest who will never arrive. This decidua remains adherent and intact and does not acknowledge its disappointment until the beginning tubal rupture. The expulsion of the decidua with some bloody vaginal discharge, which closely simulates normal menstruation, indicates either the death of the embryo or the beginning of tubal expulsion.

SYMPTOMS AND DIAGNOSIS.

In considering the symptoms and diagnosis we must make emphatic distinction as to whether we are making the diagnosis prior to or following rupture. There is hardly any pathology that can hide itself more effectively and then in a few short hours reveal itself more openly than an ectopic pregnancy. Prior to rupture of the sac the absolute diagnosis is always difficult, and most of the time impossible. After rup-

ture the symptoms become as clear as an acute appendix. Prior to rupture the outstanding subjective symptoms are amenorrhea, pain and soreness in the pregnant tube. If there be breast and gastric symptoms they are usually less marked than in normal pregnancy. The patient has a feeling that while she suspects herself pregnant she fears that all is not well. If she consults her physician he should make careful but gentle examination. The objective symptoms will be a softened cervix, slight uterine enlargement with abnormal pain to the slightest manipulation, so much that the examination is usually unsatisfactory. The above symptoms, together with a history dating back a number of years that would indicate pelvic adhesion, would warrant a tentative diagnosis of extra-uterine pregnancy. After rupture there will be added to the above symptoms an increase of pain, sometimes so agonizing as to produce the so-called tragic stage. (I wish to state that this tragic stage is more often absent than present.)

Due to the chemical irritation of blood in the peritoneal cavity, there will be a mild leucocytosis which subsides quickly but recurs with each additional escape of blood into the peritoneum. There will be a slight rise of temperature, usually to less than 101 degrees. As soon as the decidua begins to separate there will be a bloody vaginal discharge which more resembles menstruation than it does the excessive clotty flow of threatened abortion. On vaginal examination there will be found a soft, tender mass behind, or to one side, and rarely in front of the uterus. Cullen's sign of the bluish-green tint around the navel will not be present unless the pool of blood extends that high. Jaundice of the conjunctiva, coming about two weeks after rupture indicates the absorption of blood from the peritoneum. The best short statement of the symptoms of ectopic pregnancy that I have read is that given by Harris when he says: "When any woman after puberty and before the menpause, who has menstruated regularly and painlessly, goes from five, six, eight, ten, fifteen to eighteen days over the time at which menstruation is due, sees blood from the vagina differing in quality, color, quantity or continuance from her usual menstrual flow and has pains, generally severe, in one side of the pelvis or the other, or possibly in the hypogastric region, ectopic pregnancy may be presumed."

Polak says: "We teach that any woman is liable to ectopic; that where there is anomalous bleeding, a skipped menstruation and abdominal pain, even when it is attributed to indigestion, ectopic should be suspected. When there is painful defecation or rectal tenesmus, associated with vaginal bleeding, always thinks of ectopic. That when called to see a woman in collapse with any of the appearances of internal hemorrhage, always diagnose ectopic, for, in the majority of cases you will be right, and in all cases she presents a surgical proposition."

Should the foetus survive rupture and continue to develop until motion is felt and heart sounds can be heard, then the difficult problem of diagnosis between intra and extra-uterine pregnancy must be made. The previous history will be helpful. The presence and movements of the foetus are progressively distressing and painful, producing a semi-invalidism. There will be absence of Hegar's sign. If uterus can be felt it is found empty. Foetal outline in abdomen is difficult to determine but everything indicates it to be abnormally near the surface. Radiograph is sometimes helpful.

TREATMENT.

The consideration of treatment of extra-uterine pregnancy resolves itself into the simple question of when and how the operation should be done. The only exception to the above statement is again to call attention to the fact that many women have an extra-uterine pregnancy with early rupture and death of the embryo and complete absorption and never realize just what happened. They usually think that it was

simply a delayed menstruation, or, at most, a spontaneous abortion, and if they seek medical advice it is an easy matter for the physician to overlook the correct diagnosis. When the above incident happens, and there is no infection or other ill effects resulting, and the woman returns to her normal health in a few weeks, then an operation is unnecessary. But this fortunate outcome is the exception rather than the rule.

With our increasing diagnostic acumen there may be an occasional case where dagnosis can be made prior to rupture with reasonable certainty; in such cases an operation should be promptly performed. After rupture has taken place the patient should be operated upon just as soon as she can be placed in a hospital and receive efficient surgical cure *regardless of her condition.* In making the above statement I am not only giving utterance to the teaching of men of large experience and of accepted authority, but am also expressing my own conviction that has come to me through more than one sad experience, an experience which so far as I am concerned shall never be repeated. The more extreme the condition of the patient the more urgent is her immediate need for surgical relief. With all deference to the conservative surgeon or gynecologist who hesitates to add operative shock to a patient whose condition is already extreme, I can only say that I firmly believe that the man who acts boldly and promptly will have a smaller mortality than the man who hesitates and delays. If a patient cannot survive a quickly performed laparotomy with tying off the bleeding vessel, then she would die if left alone. Hemorrhage will produce more shock than the laparotomy, and, after a patient has bled to death in her abdominal cavity, it is unfair and untrue to say that she died from shock. Of course all supportive measures should be used during operation, especially blood transfusion, or, if this is not immediately available, then some other intravenous solution, preferably glucose. It has been suggested that the blood in the patient's abdomen be dipped out and saved and then transfuse her with her own blood. I believe that this procedure would add technical difficulties that would more than nullify its benefit. The above discussion applies to those patients whom we find in the tragic stage. Fortunately most cases do not present this stage. On account of the peritoneal adhesions which take place around the eroding tube, the perforation is more gradual and the hemorrhage is not so massive. There may be repeated small hemorrhages as the tube gives way to the growing embryo, and the true pathology is revealed in a progressive way. Again I say that operation is indicated as soon as the diagnosis is made. Finally we must deal with extrauterine pregnancy where the foetus survives rupture or tubal abortion, or where the ectopic is of ovarian origin. In this condition the placenta engrafts itself upon any organ of contact, and just as the mistletoe dropping upon the branch of a tree proceeds to establish vital connection with the sap that flows beneath the bark, so does the placenta proceed to establish vascular connection with the vessels beneath. Nor does this octopus-like organ practice any economy in the blood supply which it provides to the growing foetus, for it develops blood vessels so large and so numerous that the moment we begin to detach it we are met with an outpouring of blood that is appalling and impossible to control. The foetus in its sac disports itself with painful activity among the intestines. It is easily recognized as soon as the abdomen is opened and its removal presents no difficulty. The problem which remains yet unsolved is how best to deal with the placenta. If by good fortune it is found to be attached only to the uterus and such organs as can be removed, then it may be removed with these organic attachments. But where attachment is to parietal peritonem, intestines and mesentery, then immediate removal becomes a surgical impossibility. If the placenta cannot be removed

it may be dealt with by marsupialization in which the edges of the gestation sac are sutured to the abdominal incision and the opening lightly packed with gauze. This gauze picking is renewed every second day. In the course of a few weeks the placenta will have sloughed leaving a sinus which will usually close. In recent years Beck has left the entire placenta to be absorbed. He cuts the cord closely and closes the abdomen without drainage. His mortality is about thirty-three percent which is at least as good as that obtained by marsupializaton.

There can be no rule laid down as to the best method of dealing with every case. In spite of all our surgical devices the mortality remains high. I do not believe the subject has received the study of the average physician to which its frequency and importance entitles it. There is much in the literature concerning it but more often the report of isolated and freakish cases. While the reports of these cases are instructive and interesting, yet we should study the subject as an entity, using each case we meet to add to our store of experience. It is a many sided problem and to cope with it successfully demands that we acquire that rare something called surgical judgment.

STEWART'S INCISION IN RADICAL SURGERY OF THE BREAST.*

RUSSELL E. STONE, M. D.,
NEW ORLEANS.

The incision in any surgical procedure has always and will continue to be an important factor in the final analysis of surgical operations and always deserves careful planning. A badly placed incision hampers the operator in the subsequent steps of the operation and often necessitates making a secondary incision causing unnecessary disfigurement of the patient. The worse feature of a badly placed incision is that it does not give ready access to the anatomical structures to be dealt with later. For instance, an incision for inguinal hernia placed too high or too low or not parallel to Poupart's ligament; a vertical instead of a transverse semilunar incision in fracture of the patella; or, a perpendicular incision instead of a transverse

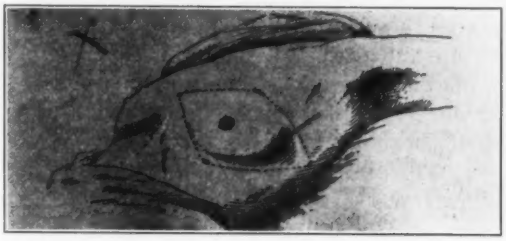

Figure 1—Outline of incision showing extent of skin removed.

incision in thyroid surgery. A faulty incision is the most common mistake with the average surgeon and often leads him into serious trouble. The ideal incision is one which permits the greatest accessibility to the structures to be dealt with and which does the least damage to the structures through which it goes. It is one that can be closed with the least disfigurement which results in restoring the normal relation and function.

I know of no operation that has more different incisions designed than that for amputation of the breast. None were ideal until Stewart of Philadelphia created his transverse incision in 1915. The incision is nearer the ideal than any I know of. Other incisions which gave the best comestic results and interfered the least with the subsequent function were the worse as they did not include enough skin or did not give sufficient access to the tissue to be removed. Until the Stewart incision was introduced all the incisions which gave the best exposure and enabled surgeons to do radical surgery resulted in disfigurement and often disability. One might say that this should not be objection as a thorough removal of a malignant condition, but the fact remains that the latest text books of operative sur-

*Read before the Louisiana State Medical Society, Monroe, April 15-17, 1926.

gery fail even to mention this wonderfully incision of Stewart. No lesser authority than Dr. W. W. Keen said that he considered this incision one of the most important contributions to surgery in the past fifty years.

The Stewart incision is an elliptic transverse incision. The ellipse including as much skin as indicated. The exact situation of the elliptic incision may vary with the site and size of the tumor; *i. e.*, it should be placed higher when the tumor is nearer the upper periphery of the gland and lower when the tumor is nearer the lower periphery. The shifting of the line of incision permits one to remove the skin above and below as the situation of the tumor may indicate. One would be impressed at first glance at the incision, as shown in Fig. 1, the possibility of not being able thoroughly to expose the axillary structure, but by mobilizing the skin the axillary space is exposed so thoroughly that a complete dissection can be readily and easily accomplished.

Figure 2—Mobilization of lower skin-flap which facilitates closing of wound and the wide removal of fat and fascia with breast.

I have used this incision in forty-seven cases and have obtained a better exposure than I have ever been able to obtain in any other incision employed as you will readily see in the other figures. A thorough mobilization and a retraction of the skin is very necessary over the pectoral muscle and in the axilla. When the elliptic incision is made the skin should be thoroughly mobilized, both, above and below the mama. The

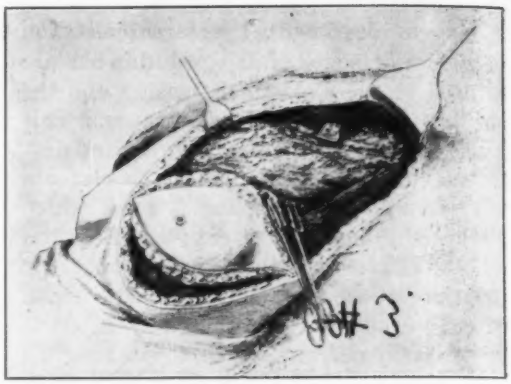

Figure 3—The possible retraction of the upper flap and the division of the tendon of the pectoralis minor. The extent of the exposure of the axilla is indicated by the stump of the tendon.

mobilization should extend down under the arm beyond the hair line of the axilla. One advantage to be gained from the mobilization at the beginning of the operation is that it permits you to remove the fat and fascia beyond the breast. With this mobilization and retraction of the axillary skin the pectoralis major tendon is exposed down to its insertion.

The next step in the operation is to determine what structures are to be removed. Our custom is to remove both pectoral and part of the sheath of the latissimus dorsi and serratus magnus muscles. If the growth is situated at the lower and inner quadrant of the breast it is more important to remove fat and fascia from the upper portion of the rectus than to remove the lesser pectoral muscle. It is always a personal equation as to what procedure one will follow in a given case. The change from the routine depends upon the situation of the pathology. The greatest advantage from removing the lesser pectoral is that it gives a much freer exposure of the glands along the axillary vessels and permits a more radical dissection. In the usual case you first separate the clavicular from the pectoral portion of the pectoralis major and then divide the pectoral portion of the tendon nearest the insertion into the humerus. This portion of the muscle is then reflected, the tendon of the lesser pec-

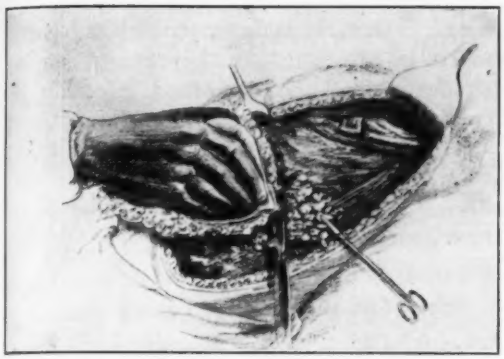

Figure 5—The final step in the operation after reflection of the axillary glands and fat, with as much of the sheath of the subscapularis, the latissimus dorsi and serratus muscles as is indicated the attachment of the two pectoral muscles divided.

toral isolated and divided near the coracoid process. The glands and the fat of the axilla are then dissected free from vessels and reflected with the muscles a clean dissection of the axilla is attended to. All the fat overlying the subscapularis muscle and the latissimus dorsi are removed, plus glands if any involvement found. The sheaths of these muscles are removed. The origin of the pectoral muscles are divided, the breast with attached muscles, fat, glands and fascia is turned downward and as much of the sheath of the rectus and the serratus muscles are removed as indicated by the extent and situation of the growth.

Evidence of supra-clavicular gland involvement can be removed with this incision. Personally, I believe when the supra-clavicular glands are involved the case is incurable and inojerable. Haemostasis must be absolute before closing the wound because the accumulation of blood and serum in this type of incision is a very troublesome complication. Drainage is established by a rubber dam introduced into the axilla near the outer angle and removed in 48 hours.

One of the many faults in other incisions in breast surgery is the inability to close the wound completely often necessitating skin grafting. We have never had to resort to this in our series. The wound should be closed from the two ends; *i. e.*, one stitch is placed in one end then at the other because if the closure is started at one end and carried across the wound you are apt to find the difference of the two lines of the ellipse result in a disfiguring inequality in the two edges of the wound.

CONCLUSIONS.

The Stewart incision permits one to carry out the principles taught by Halsted:

First, the axilla is attacked in order to determine the extent of the lymphatic involvement and the feasibility of radical surgery.

Second, the blood vessels are cut and lighted at the origin; *i. e.*, those that supply the breast, minimizing hemorrhage and preventing shock.

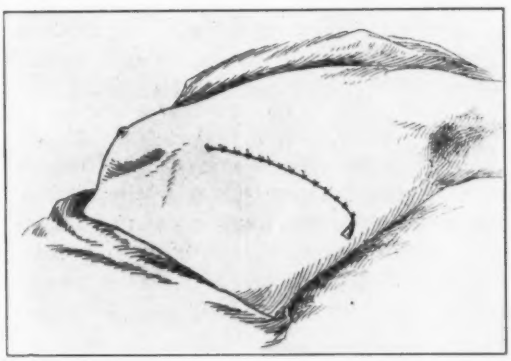

Figure 6—The closed wound with rubber dam drainage, axillary skin forced back into position, easily done when elbow is raised and arm at right angles to hte body.

Third, the incision permits free exposure including the subscapularis space which is often neglected. The incision does not run into the arms or through the axilla which would create a contracting scar that interfere with the arm function, plus pressure upon the blood vessels and nerves.

The cosmetic closure of the wound is ideal which means much to the patient. The wound is dressed by a simple gauze dressing and held into position by Z. O. I have never had edema of the arm.

WHY WE DO NOT ELIMINATE MALARIA MORE RAPIDLY.*

J. A. LEPRINCE,
MEMPHIS, TENN.

Sanitarians who are obtaining decidedly satisfactory returns for service rendered and for funds expended in malaria reduction are unitedly of the opinion that salesmanship is an important part of sanitation.

Unfortunately, there are other professional health workers in highly malarial districts who work without a definite and practical program, some of them do not even believe it possible to control malaria economically, and yet these same individuals in a half-hearted sort of way attempt to sell a desire for mosquito and malaria control to the people of the county.

This sort of so-called sanitation is doomed to failure; and is a waste of time and public funds. Neither a health worker nor anybody else can sell something he does not believe in. It has not yet been done because it cannot be done.

A few health officers are really afraid of tackling the serious malaria elimination problem that is the item of greatest sanitary importance to their county, for fear they will make a failure of it. They surely will if they go at it with that attitude. Again, others are apparently of the opinion that other branches of sanitation will appeal more to the general public and affect future appropriations more favorably.

If that is so, why is it that in the past five years of all the new full-time health units created in nine Southern States, 30 percent were formed soon after the first season of successful anti-mosquito work? There is a reason for this that deserves serious consideration.

I have had opportunity to visit many health units and have noticed that among health workers malaria chills are very much less frequent than "appropriation continuity chills." A combined infection of both types might be worse than fatal. Just as quinine is a specific for new melaria cases so there are remedies for "appropriationitis"—they are forethought, applied common sense, and hard work.

I desire to invite your attention to a statement published eleven years ago:

"Some mosquito-control work has been undertaken which would have been far more successful if those directing the work had spent more time out in the field where the work was thought to be progressing satisfactorily."

When a large portion of the public is decidedly interested in applied sanitation and insists on its continuaton; and where the county officials and potential county officials are constantly kept advised as to what is being done and are asked for suggestions for bettering sanitary activities without affecting appropriations; then the atmospheric conditions become unfavorable to development of "appropriationitis." Mosquito control measures can be planned to bring this condition about. In several cases where this procedure was used the commissioners told the county health officers not to worry for a minute about next year's appropriation as they thought its continuation essential, although shortage of funds made reductions in other county work absolutely necessary.

A great deal of time, worry and expense is wasted each year because we fail to keep the public and public officials advised about what we are doing, why it is being done, and what we are getting for the money expended. Sanitation is (or should be) an investment of public funds, and the public must know what they are getting for their money.

The penalty for lack of keeping them posted and keeping up their interest is "appropriationitis." How long before appropriation time comes around do you begin to worry about this matter?

*Read before the Mississippi State Medical Association, Jackson, May 11-13, 1926.

It would be decidedly interesting to determine how many health officer days (or total number of hours) are expended each year in trying to get funds reappropriated or increased, and to ascertain what is the equivalent total money value lost each year in dollars and cents.

In one state there was a county health officer in a county with much malaria who was afraid that if he dared to attack his malaria problem seriously it would be detrimental to him and his work. It actually took seven years of hard work to sell that gentleman the opposite view. He is now the worst type of enthusiast, just as I am, and is directing excellent field work. He is doing it in the field and is not attempting to do it in his office chair.

If malaria is costing the citizens of your county anywhere from one-tenth to one-third of the amount they pay each year as taxes into the county and state treasury, then whose duty and whose business is it to see that these unnecessary additional burdens are reduced.

If malaria is twenty-five percent or more of the total sickness reported by physicians, is it fair and just to the citizens who are supporting the health unit to allow this condition to continue when we know it is preventable? If we do, then we have a health unit in name only, and are not doing effective work.

In this state in a malarious county a remarkable malaria reduction was made through the determination of a part-time county health officer. In a county in another state a sanitary inspector without any support from the county health officer, got fifteen school districts (one-half of the total) competing to see which could accomplish most local malaria reduction. Is there any reason why a full-time health officer cannot do something, why he can't do as well as an inspector? The answer is that they can if they want to do so.

We have more data about malaria prevalence in this state than in any other, but we are not using that information effectively—in a way to better our health status. I do not know how much money will be appropriated by this state, by the counties, or other agencies this year for malarial control, but it would be very interesting for you to find out what return will be forthcoming in malaria reduction for each dollar so appropriated. The enormous reduction of malaria in Yazoo county cost less than six cents per capita per year, and less than four cents per capita per year of county funds.

Suppose you who are devoting your full time to health work should select one-quarter of your county for a similar anti-malaria campaign and go at it with the same spirit that the Yazoo Sanitation Unit attacked its problem, and keep the people of the county fully advised about what is going on, and what is being accomplished. By doing that you could enable them to gather a larger portion of their cotton crop earlier than usual and to leave less in the field. You will be giving them what they are paying for but are not getting where malaria control possibilities are neglected.

In Leflore county the county health officer has shown that the farm tenants in Mississippi can be induced to take better care of tenant shacks by screen protection than occurs at the average home of white farmers.

The health officer of Yazoo county has shown the possibilities of malaria control on a county-wide basis.

We know that Gorgas at Panama with 365 anopheles breeding nights in the year, by having boys destroying mosquitoes in houses in Camp A and not in Camp B had forty-two times as much malaria in Camp B as in Camp A and we cannot claim we have a decided lack of colored children in the farm tenant homes in the Mississippi Valley to do this work.

If we put the title of this paper in an interrogative form before an impartial jury and submit the facts to them, it is possible that their verdict would be—"We do not eliminate malaria more rapidly because we are not really interested in doing so."

If we do not believe in malaria control we should omit it completely from our health program and continue to let the ungathered cotton rot in the fields. If we do believe in malaria control we can and should eliminate it in the Mississippi Valley much more rapidly than we are now doing.

HEMATURIA.*

P. JORDA KAHLE, M. D.,
NEW ORLEANS.

Hematuria is a symptom, not a disease. Essential hematuria is not a diagnosis. It is an admission of failure to diagnose. Failure to discover the cause, is not a reason for assuming that there is none. The urologist, in spite of his special training, in spite of the instruments of precision at his command, not infrequently fails to discover the cause of a hematuria and he should and must frankly admit it, at the same time advising examinations at intervals as they may lead in time to a diagnosis. Consequently, because it may have been the experience of some of you to fail to have the cause of hematuria diagnosed at one sitting you have no right, in justice to yourselves and especially to the patient, to neglect procedures that are simple, safe and usually painless. The discomfort of an urological examination to determine the source and the cause of hemorrhage is far out-weighed by the risk of overlooking a condition that should have been diagnosed in its incipiency.

While most of us recognize the fact, there are, unfortunately, too many, who through ultra-conservatism, neglect, ignorance, or faith in the efficacy of some favorite prescription, allow the hematuric to drift until his condition is beyond medical or surgical skill. When a hematuria has ceased, following the administration of some "remedy," a serious responsibility is assumed if it is taken for granted that the patient is cured. More generally, the bleeding has ceased in spite of the treatment. There is hardly a day that passes that some surgeon does not see disaster resulting from the pernicious practice of prescribing for hematuria without thorough examination. We are deluding ourselves and doing patients a serious wrong when we assure them that a hematuria, no matter how trivial, is insignificant.

The source of a hematuria may be found anywhere in the genito-urinary tract and its causes are many.

First, from the kidney.

(a) In lesions due to trauma, calculi, varices, pyogenic infections, tuberculosis, syphilis, tumors, infarcts and emboli, sclerosis of the glomeruli and of the renal vessels, displacements, aneurism of the renal artery, thrombosis of the renal vein, acute hemorrhagic nephritis following catheterization or supra-public cystotomy, and in glomerulonephritis.

(b) Following the ingestion of certain drugs, such as turpentine, cantharides, arsenic and urotropine; and of certain poisons including such whiskey and alcoholic beverages as are found on the market today.

(c) In acute or chronic diseases, such as smallpox, typhoid, and malaria.

Second, from the ureter because of calculi, tumors, tuberculosis, and inflammations (ureteritis).

Third, from the bladder, because of tumors (benign and malignant), calculi, tuberculosis, pyogenic infections, syphilis, parasites, trauma, foreign bodies, varices and ulcers.

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*Read before Orleans Parish Medical Society, June 28, 1926.

Fourth, from conditions of the prostate, such as hypertrophy, carcinoma, and trauma.

Fifth, from the urethra, in urethritis, trauma, growths and varices.

From this formidable list of causes the futility of a guess is apparent. It is not my purpose to discuss the differential diagnosis and treatment of the hematurias, but rather to emphasize the necessity for thorough examination, in order to discover the cause and especially to eliminate a neoplasm as to the causative factor. It might be said, generally, that the less the discomfort, the more the reason for a complete urological examination.

Were the results of guess work and baseless optimism in hematuria followed by no serious consequences, we might be guilty of no more than careless and unscientific methods. Unfortunately, too often the consequences are such that negligence borders on criminality.

These remarks may seem unduly harsh, but if they arouse you to your responsibility to the hematuric, they may be pardoned.

It is not necessary to burden you with the histories of a large number of cases to bring out what I have in mind. A few cases will illustrate the most serious problem with which we have to contend, as a result of failure to examine properly the hematuric. Nine cases seen within a period of two months and two seen shortly after, will suffice. The latter were not operated by me either for palliation or in attempt to cure. There were, of this number, one case of papillary carcinoma of the pelvis of the left kidney, giving a history of hematuria for three years; one case of hypernephroma of the left kidney; seven cases of carcinomata of the bladder; four papillary and three adenocarcinomata, all giving histories of hematuria, varying from eight months to six years; two cases of adenocarcinoma of the prostate, involving the bladder and the internal meatus, giving a history of hematuria for several months in one case and one year in the other.

One case only, that of the papillary carcinoma of the kidney, had a cystoscopy been done. Unfortunately, this patient had had no pyelogram made. The doctor who had seen him, never during a hemorrhage, assumed that the bleeding was due to a congestion of the bladder. The pyelogram, made almost three years after his initial hematuria, showed a filling defect of the pelvis and the calices and a diagnosis was made of a tumor of the kidney, involving the pelvis. The case of hypernephroma had bladder irrigations and prostatic massage for three months. No cystoscopy was done. The patient had lost forty pounds, was cachetic, and had a large palpable mass the left side. At the time of examination this gave very little promise of relief by surgery or any other mode of treatment.

In the bladder cases, at the time of examination, only two gave promise of good results if operated. One was a small adenocarcinoma of the posterior wall near the fundus, the other, a papillary carcinoma on the right lateral wall near the fundus. In the other five, the condition was inoperable, except for palliation.

One of these cases had been treated for stricture and cystitis; one for carbuncle and cystitis; one for calculi, an X-ray, but no cystoscopic examination having been made. This patient, for the relief of abdominal pain, had had an appendectomy done a few months before the carcinoma was discovered. There was no relief. Two had been treated for cystitis by being given urotropin; while the other had been given prostatic massage for eight months, with no results. He then consulted an osteopath, who treated his spine with a view of curing him of his hemorrhage. One had been irrigated with no attempt made at diagnosis. Except for palliation, the case was inoperable.

In the carcinomata of the prostate, both cases had been given medication for pain and other urinary symptoms, including hemorrhage. Both were seen after the carcinomata had broken down.

Diagnosis and cure are not synonymous, but the early recognition of lesions such as these, offers the only hope for a larger percentage of cures than we now obtain.

In neoplastic diseases of the kidney, the condition may progress for years before extension or metastasis occur, but the prognosis is proportionately better as tumors are recognized and dealt with early.

Malignant tumors of the bladder likewise show great differences in behavior as regards the rapidity of growth and extension and the occurrence of metastases. So in benign tumors, the extent, the size, and the tendency to undergo degeneration, varies. We have seen very small innocent looking papillomata which on histo-pathological examination showed evidence of degeneration. We have seen extensive inoperable carcinomata, with no cachexia, which, from the history of hematuria thirty years before, must have been very slow in their development. In the former, the results have been good, in the latter, discouraging. There is not a surgeon who will not admit of his many failures in the treatment of carcinomata of the bladder, whether by cystectomy, total or partial, by cauterization, by fulgeration, by diathermy, by radium therapy, by deep X-ray therapy, or by a combination of two or more of the above methods.

Compare these indifferent, not to say disappointing results in malignancies, with the brilliant results by simple means in the majority of benign papillomata and there can be no doubt that if an urological examination has done no more than exclude papillomata as the cause of hematuria, much has been accomplished. Hematuria often means papilloma and every papilloma is potentially malignant.

DISCUSSION.

Dr. W. A. Reed: The classification of hematurias as given by Eisendrath of Chicago seems to me to be a very suitable one. He classifies hematurias in three groups: (1) systematic, viz., resulting from scurvy, leukemias, high protein intake in diet and in some of the acute infectious diseases but in this type the degree of hematuria is usually very slight. (2) from conditions involving organs adjacent to the genito-urinary tract, such as appendicitis and inflammations of the female genitalia. (3) This group includes the large majority (66%) of all cases of hematuria. They are divided equally between the upper and lower genito-urinary tract. So you see that we have more than 50% of all hematurias due to or resulting from conditions in the genito-urinary tract per se, and not from systemic disease. Therefore, it is necessary to make a complete urologic and cystoscopic examination before one can make a reasonable diagnosis. One of the most potent factors I know of in causing us to realize the necessity of making these examinations in hematuria is the results of Casper's work, who made observations on 15 cases of hematuria immediately after the first attack of bleeding. In this group he included only cases of tumor of the bladder. In all but three he found the tumors small and amenable to treatment, and was able to destroy them at that time. Usually cases, when they first come to us, are of 6 months to 6 years standing, when they have reached the point where nothing can be done. The sooner we get to these growths with the treatment we have at our command the greater will be our number of cures. In 541 cases, tabulated by Garaghty, the first symptom seen was hematuria in 75% of the cases. That was the only symptom; there was no frequency or pain. Frequency and pain occur, only late in the disease. These cases should not be treated with drugs; they should be examined by means of the cystoscope, and as early as possible, so that something can be done before the case has become incurable.

Dr. A. Mattes: I think the paper presented by Dr. Kahle is a rather timely one and is of extreme importance. We are seeing cases of hematuria from the urological standpoint right along. The time to cystoscope a case is while it is bleeding. Whether we find the cause or not it is necessary to get in touch with a urologist or competent cystoscopist associated with an X-ray man in order that proper interpretation can be made and a report given on the causation of any case of hematuria. Occasionally the diagnosis is a nephritis that falls in the province of the medical man. A competent urologist should

be consulted in every case where blood is found present in the urine.

Dr. Frank Chalaron: Anyone who has done a little urology gets acquainted with the class of cases giving a history of hematuria of years duration, and which, on cystoscopic examination, are found hopeless; cases for which something might have been done. I do not say that of all cases of hematuria (I except those where the cause of the hematuria comes directly from the urethra, where the first urine is bloody and the second clear)—but all others require cystoscopic examination for differential diagnosis. Small papillomas may not be found, except when bleeding. The time for cystoscopic examination is when the hematuria is present. I have gone in one day after the hematuria had ceased and only with the greatest difficulty and much scrutiny was it found. I have, on the other hand, found a minute papilloma by following the blood stream.

Dr. Jamison: Does the doctor mean macroscopic or microscopic blood?

Dr. Kahle (closing): In answer to Dr. Jamison I would say that I really had in mind macroscopic blood or gross hematuria, although microscopic blood would be sufficient evidence for further investigation.

In answer to the discussion there is little that I could add without going into endless details but what I had in mind, was the making of a diagnosis, if possible, in all cases of gross hematuria with a view of eliminating tumors of the bladder and of the kidney.

In the two cases of renal tumor mentioned here both had been seen by a urologist but both were ultra-conservative.

In the first, the case of tumor of the pelvis and of the calices, the patient had been cystoscoped and although bleeding for 3 years had had no pyelogram made.

In the other case, that of a hypernephroma, the patient had been seen by a urologist but no cystoscopy had been done as it was assumed that the hematuria was due to a prostatitis.

I feel sure that a diagnosis in both cases would have been made had not the urologist been too conservative.

It is interesting to mention in connection with the carcinoma of the pelvis and of the calices that Dr. Lanford made a diagnosis of carcinoma from a study of the cells from the centrifuged urine. The diagnosis was confirmed by the pyelogram as well as by operation.

With reference to Dr. Chalaron's discussion, it is rather unusual to have a tumor of the bladder causing a gross hematuria which cannot be discovered except during hemorrhage.

ATYPICAL GLAUCOMA.*

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The last word has been said on very few medical subjects and certainly much has yet to be learned about many diseases which confront us. Medical men have been criticised for extreme individualism, but it is this very characteristic which has advanced medicine to its present position. It is necessary for all of us to study diligently and to commune much with our fellows in practice so that we may keep abreast of modern thought, but we must not become hidebound in our ideas of diseases and their treatment. We must learn to consider medical subjects with somewhat of an attitude of detachment so as to get perspective and thus bring our own intellects into use. It would be gross ingratitude for the writer to disparage the efforts of our leaders and predecessors in ophthalmology, but if we consider that their beliefs and practices are final we soon find ourselves mentally stagnated.

A study of the average text book on ophthalmology would lead one to believe that the diagnosis of glaucoma is a matter of the greatest simplicity. They speak glibly of the dilated veins, shallow anterior chamber, dilated pupil, narrow iris angle, excavated disk, increased tension, arterial and venous pulsation, contracted fields, halos and so forth. That the belief is quite general, that glaucoma is easy of diagnosis was shown a few days ago when a confrere in general practice called the author on long-distance telephone to ask how to diagnose such a case. The writer smiled as he told the doctor the cardinal symptoms, be-

*Read before the Mississippi State Medical Association, Jackson, May 11-13, 1926.

cause he was thinking of the difficulty he might have if the patient were before him. It is the belief of the writer that the typical text-book case of glaucoma is the exception rather than the rule—this applies especially to the simple type.

As the author gets older in the practice of ophthalmology he not only sees more cases of glaucoma but the percentage of such cases increases. There is no reason to believe that the disease is more prevalent than formerly, so he is forced to the conclusion that in the past he has made some erroneous diagnoses. This doubtless resulted in great harm to some of the patients or added to the laurels of his more astute confreres.

Certainly it is not to be expected that each case of glaucoma will present all the diagnostic points of the disease but it has been the experience of the writer that many patients show so few of these points as to make the diagnosis quite difficult. It is necessary in some cases to delay treatment a number of days for careful study. Of course, those cases which suffer from delay are in such condition as to be comparatively easy of diagnosis and thus do not require long study.

A careful history is most valuable in the diagnosis of glaucoma as in other pathological conditions, but the inability of some patients to express themselves clearly and the natural stupidity of others necessitates the exercise of much care and patience in history taking. The author had one patient who came to the office complaining that she was gradually losing her visual acuity, that she saw colored rings around the light, that her eyes had a full, heavy feeling and that her visual fields were contracting. When she concluded her recital there he was surprised, for he had expected her to proceed with the statement that she had simple glaucoma. It would probably be necessary to practice several life times to discover another such patient. The rule is that valuable data are gathered only by careful questioning.

Perhaps we may profit by a discussion of some of the principal features of glaucoma.

Glaucoma has been defined as a disease of the eye having as its essential feature an increase in intraocular tension. This would seem to preclude the possibility of the disease without an increase of tension, but we have all seen cases which were undoubtedly simple glaucoma in which we were unable to demonstrate an increase in intraocular tension. When this is the case tonometric readings should be made repeatedly with the same instrument and these compared with the readings from the fellow eye. It is in these cases that we have least to fear from delay and consequently more time for study.

It should be borne in mind that the tension in normal eyes varies widely. Observers have placed the normal all the way from 12 to 30 mm. of mercury as measured by the Shiotz tonometer. The author thinks that a safe range is from 15 to 26 mm. of mercury, and that tension higher than that should be looked upon with suspicion.

One must depend entirely on one's fingers for the determination of ocular tension in cases of abnormally shaped eyes because of the fact that the bases of all tonometers are made to conform to the normal corneal curvature. This is unfortunate since most of us learn to distrust digital findings when we have compared them with tonometric reading for some time.

Any junior medical student can tell us that in glaucoma, simple or acute, the pupil is dilated, and as a matter of fact that is usually the case. However, in January of this year the writer made these notes on a patient's record as he made the customary external examination in good daylight—pupils small, equal and react to light. This man's vision was OD=pl OS=

20/50, his tension taken with the Gradle-Shiotz tonometer was 66 mm. of mercury in each eye.

Our medical student will also inform us correctly that the anterior chamber is shallow in glaucoma, but in many cases if we wait until this is demonstrable we will have sacrificed much vision which could have been saved by early treatment. I grant that means are available for the accurate measurement of the depth of the anterior chamber but the apparatus necessary is not in the hands of many competent ophthalmologists. The question of depth of the anterior chamber is especially difficult if there is no difference in the two eyes. Incidentally the cause of this shallowness of the anterior chamber influences our selection of an operation for reduction of tension.

Dilated episcleral veins are apt to be present in simple glaucoma, but they may be absent; and they are also apt to be noticed in non-glaucomatous eyes.

Cataract in an eye suspected of having glaucoma is always a matter for careful consideration, as it may be caused by glaucoma, may be the cause of glaucoma or may be a senile cataract which simply happens to be present in the eye in question. In any case, the lens opacity will cloud the issue, if a pun be permissible, and make our diagnosis more difficult. If acute glaucoma occur in a cataractous eye one is always apprehensive of an intraocular tumor and is quite guarded in prognosis.

When a wide deep exacavation of the disk is present we are never at a loss, but if we wait for that sign to appear the patient has suffered irreparable loss of vision. This condition is usually absent early in the disease and it is then that we most need help in diagnosis. Pallor of the disk should always be suspected as a sign of early glaucoma, but the differentiation from beginning atrophy is not easy.

Our text books tell us that glaucoma is a disease largely of middle and late life, but the literature is full of cases of glaucoma in young individuals. These are not cases of buphthalmos, but well defined examples of glaucoma simplex. In the writer's experience these cases of glaucoma in young persons have been largely confined to the negro race.

In some cases of glaucoma, particularly in those cases which after examination might be diagnosed as sub-acute exacerbations, we should look for signs of uveitis. Realization that we have done an iridectomy for glaucoma secondary to iridocyclitis is cause for much chagrin. These are cases which require much study, and much courage is needed to use atropin in an eye which exhibits a definite increase in tension.

All cases which require the use of mydriatic drugs over a long period should be watched carefully for symptoms of glaucoma. It is not infrequent in dispensary practice to have a child suffering from interstitial keratitis return to the clinic after a few weeks absence with well established glaucoma.

Arterial and venous pulsation have been the exception rather than the rule in the observation of the writer.

It is not the object of this little paper to make a difficult subject appear more difficult, but rather to emphasize the fact that in early glaucoma many diagnostic points are not present. It is in these early cases that most is to be gained by treatment and therefore all possible means of diagnosis must be utilized. In case of doubt glaucoma should be suspected and treatment should be delayed until doubt no longer exists. In these early cases the history must be carefully considered, the anterior segment of each eye should be studied and compared, the refraction should be determined, loss of accommodation and the change of latent into manifest hyperopia should be investigated, the diameter of the cornea should be determined, the condition of the

media should be examined, the fundi, and especially the disk must receive careful scrutiny, tension must be taken, perhaps repeatedly, and perimentry of the whole field and of the center must be carefully done.

Perhaps we are most misled by the text books in the matter of treatment. One would gather that iridectomy in acute glaucoma and myotics in glaucoma simplex would cure most cases and that the remainder could be well handled by one of the many decompression operations. As a matter of fact the very multiplicity of operations is proof that none of them is satisfactory. The writer agrees with the oculist who said that he was not sure that myotics ever cured a case of glaucoma but he *was* sure that they had prevented many cures.

When a patient is treated with eserin or pilocarpin he should report for observation at least once a month. At these times his visual acuity should be noted, his field should be recorded and his tension should be taken. Many of these individuals after a few such visits will consider that they are wasting time and money, but if they neglect these periodic examinations they will, without exception, return after some months with reduced vision and contracted fields that nothing will restore.

Where sufficient material is available a young oculist should treat a series of cases according to each of the procedures which have proved to be most successful. Thus he may determine which of these procedures is most valuable in his hands, and he may confine his attention to two or three operations which are to be used as the case in question demands.

DISCUSSION.

Doctor H. L. Arnold: Mr. Chairman, this is to me a very interesting paper, and there are some things about glaucoma I don't know whether we will ever know. There is nothing, I think, in the ophthalmology more difficult to make than a diagnosis in these early cases of glaucoma. As the doctor says, in these early cases we don't have all these signs, and we all see these cases, and we are in doubt. But the saddest thing to me has been the number of cases which I have seen which have been almost totally, and some of them totally, blind, from the fact that they had been told they had cataracts, and they waited until they got blind so they would be ready for operation. It has been my misfortune in the last year to see probably six or eight cases with perfectly clear eyes in which any man could have told at a glance that the patient had glaucoma. Some had been fitted by optometrists, until they had lost their sight, and when they got so they couldn't make them see anything, they would tell them to see a doctor. I think in glaucoma that we really should educate not only the public, but should educate the profession, the general doctors, to have these patients consult an oculist as soon as possible—there is one thing about it, they so often preserve their central vision, and these patients have so often lost all but their central vision before they realize that their sight is gone. There is nothing that will require closer study, I think, than these cases of glaucoma. As to the treatment, I have been very much in doubt as to whether we should try to treat these cases of simple glaucoma medically, or whether they should be operated on. My experience has not been wide enough to express an opinion worth anything. I have used the trephine some, and have had very good results with the cases on which I have used it.

Doctor L. S. Gaudet: Mr. Chairman and gentlemen: While Doctor Stanford was reading his paper, I made a note of several things. First of all, insofar as taking the tension—we see so many cases of glaucoma in one eye. For that reason, I believe we ought never to take tension until we take the tension in both eyes, regardless of whether we think there is a glaucoma in one eye or two; but above all things I think it is a bad policy to take tension of only one eye. The same thing with the field of vision. Two years ago at the Southern Medical Association, Doctor Martin, of Georgia, I think, read a very interesting paper on toxic uveitis. He gave us the field of vision in one eye only. To my mind, that field of vision is worth nothing taken in one eye if you didn't have the other eye to judge by. You couldn't judge of the field of vision in a single eye. Those are the two things that ought to be done in both eyes.

Again, we have very indefinite symptoms in glaucoma. Most of the time we see these patients complaining of lowered vision, and it takes quite a great deal of time and study, more so than patients are willing to give you, to go over those cases to be able to come to a definite conclusion.

The next thing, insofar as periodic examinations, that is one of the hardest things I have found my patients to be willing to do. I have cases now who will go three, and four, and five months, because they are feeling good, or for some other reason and not come back to us. I even like to make periodic examinations, not once a month, but every two weeks. I think your sight is worth that. The great trouble is in simple glaucoma we have an insidious condition, the condition in which the outer fields of vision go first, and you have your central field of vision, and that is what your patient depends on, and it is unfortunate, as he said, in many cases we do not get them earlier. I think the doctor gave us a very interesting paper.

Dr. Stanford (closing): Perhaps the title of this paper was a little misleading. It should have been called "Diagnosis of Glaucoma"; but such a title for a ten minute paper might appear presumptious. Doctor Arnold spoke of acute glaucoma. There is no question in my mind as to the proper procedure in acute glaucoma, and that is operative. Personally, I prefer simple iridectomy. In some cases treatment might be used for perhaps twenty-four hours to reduce the tension as much as possible and give us a better opportunity to get satisfactory results from operation, but I don't think any case of acute glaucoma ought to be treated longer than forty-eight hours without operation.

Doctor Gaudet spoke of taking the tension in both eyes. The tension should be taken, not only once, but repeatedly, in both eyes, and these findings compared. I thank you.

INDUSTRIAL OPHTHALMOLOGY.*

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NEW ORLEANS.

Through industrial accidents, about fifteen thousand eyes are lost yearly in the United States. This number could be greatly reduced if we of the medical profession would to a greater extent interest ourselves, employers, and employees, in the practical study of accident prevention and treatment. No one wants these accidents to occur, yet few are sufficiently interested throughly to understand why they occur and actually to prevent them. Those most directly interested do not seem to understand that for the most part, industrial accidents represent a huge and useless expense of time, money and suffering.

The first step of prevention consists in a realization that accidents are costly to all concerned, which if understood meant that employers and employees would take a pride in their reduction and investigate each injury to prevent its recurrence. This alone would probably directly and indirectly reduce industrial injuries by one-third. Liability to injury can be minimized through industrial cleanliness, proper illumination, and by the installation and maintenance of safety devices, as well as consistent use of protective glasses on those exposed to eye injuries. Persons with ocular handicaps should not be permitted to work where there will be excessive industrial risks and where only serious injury to themselves or those about them is sooner or later sure to occur. For example, a person with only one seeing eye should not be employed where moving objects quickly approach from the blind side, because with a contracted or absent visual field, one could probably not get out of the way quickly enough to avoid injury. Neither should such a person work where accurate distance estimation is necessary to bodily safety, because those with only one seeing eye cannot usually judge distances accurately and therefore should avoid ladders, bridges, tressels, etc., where a mis-step might be serious. A person with only one seeing eye should not operate moving machinery such as an automobile, etc., especially if exposed to dust, smoke or foreign bodies; because momentary blindness in one's only seeing eye under such conditions will probably cause serious injury to the individual or those about him. Only recently we saw a patient who narrowly escaped drowning because he did not know that especially when tired, a one

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eyed person cannot accurately estimate distances, with the result that he stepped over the side of a boat into the Mississippi River. Several instances have come under my observation in which automobile accidents have occurred when the driver got dust in the only seeing eye. Those with over-sensitive eyes, having trachoma, etc., should not be permitted to work where there is dust, wind, or smoke, which will cause excessive pain, loss of time, and possibly permanent injury. No one should be permitted to work where success is practically impossible because of physical handicaps. Lastly, those with injured eyes should be given immediate and efficient treatment. Infection, especially of the cornea, is frequently seen resulting from the misguided and unclean attempts of fellow workmen to remove ocular foreign bodies.

One is surprised how much can be accomplished in preventing industrial accidents and minimizing disabilities. I have in mind the greatly decreased number of ocular accidents that have occurred in one industrial corporation which now examines prospective employees to determine their ocular fitness and which maintains an interest and pride in accident prevention and which offers every facility to avoid injury and the best medical attention to the injured.

In the lids, superficial, lacerated and contused wounds usually require only cleanliness, and approximation with the removal of foreign material and occasional administration of tetanus antitoxin. Tincture of iodine or 2% mercurochrome applications may be used, of course avoiding the conjunctiva. In a warm climate bandages covering the lids and eyes should be discontinued as soon as possible. Incised wounds should usually be sutured immediately, especially where the lid rim is involved. If sutures can possibly come in contact with the eye ball, silk is preferable. Heat burns of the lids may be successfully treated either with amberine or a 10% magnesium sulphate solution application. Blood or air under the lids following severe injuries, is suggestive of skull fracture. Acid burns of the lids are probably best treated by hourly irrigation with baking soda solution, one-half teaspoon to the quart; while alkali burns are similarly treated with a sugar solution, one teaspoon of ordinary granulated sugar to the quart of water, this forming an inert saccharate. The intramuscular injection of foreign protein, preferably five to ten cc.'s of skimmed milk boiled five minutes, given every three or four days during two weeks is an experimental method apparently justified to minimize in severe lid or other ocular injuries.

In the conjunctiva, wounds should be, generally speaking, promptly sutured and even the finest foreign bodies removed to prevent delayed healing. The painless removal of foreign bodies is facilitated by the installation of a 2% butyn or 4% cocain solution. Cocain solutions should never be given a patient for home use. The lids should always be everted where foreign bodies are possible, especially in lime burns, because hard substances tend to collect and remain the sulcus sub-tarsalis.. Alkali and acid burns are treated with hourly irrigations of baking soda or sugar water as previously mentioned, in addition to which the eye ball should be protected with a non-irritating ointment. Vaseline is preferable to castor oil which may become rancid and irritating. The addition of bichloride 1-3000 and holocain 1% or butyn 1% to vaseline and the use of probed pointed tubes are suggested. Heat burns are best treated with any non-irritating irrigation followed by the use of vaseline. Electric burns are often very painful especially after twelve to twenty-four hours and associated with extreme sensitiveness to light. The use of cold non-irritating irrigations hourly and dark protective glasses is sufficient in mild cases, but the use of atropine and sedatives such as codein, etc., is sometimes necessary. Our treatment of the simpler corneal foreign bodies comprises 2% butyn anes-

thesia, speculum lid fixation, complete removal of the foreign body with as little corneal damage as possible, irrigation with any clean non-irritating solution, installation of 1% novocain, 5% orthoform, and 1% balsam of peru ointment, closure of the eye with an adhesive dressing and instruction to keep both eyes closed as much as possible for one day, then to return if the eye is painful or blurred. Rust stains which delay healing can usually be easily removed by scraping or by chemical cauterization with iodine or alcohol. For removing ocular foreign bodies an instrument I have perfected may be used. It is made of rustless steel to facilitate sterilization, and has a cutting point on one side, a scraping edge on the other and being used entirely from the side, danger of perforation is minimized.

In the removal of deeper corneal foreign bodies; increased illumination, magnification, dexterity and judgment come into play. Although difficult, removal by the aid of the corneal microscope, under a magnification of about twenty diameters, is sometimes advisable. Under no circumstances must foreign bodies, even though microscopic, be left behind because they always cause delayed healing. It is sometimes easier and safer to enlarge the corneal wound at one sitting and later remove the foreign body, if deeply imbedded, within twenty-four hours. Occasionally corneal foreign bodies associated with perforated wounds, are best removed through the anterior chamber by enlargement of the original wound but usually preferably by a Keratome incision generally at the lower limbus.

Superficial corneal abrasions are best treated with a non-irritating irrigation, the installation of a blind slightly anesthetic ointment, adhesive dressing and closure of both eyes for about a day. Pain which results from irritation of sensory nerve filaments is thus minimized. It is impossible to keep one eye immobile with the other eye open.

Deep corneal wounds often necessitate the use of atropine which in industrial ophthalmology is frequently abused. Disabilities are often increased by its injudicious use and I have repeatedly seen eyes lost apparently through the continued employment of atropine which produced an incurable secondary glaucoma. Delayed healing is especialy frequent in this type of injury and is practically always due to foreign matter in the wound, to outside infection or from infection from disease elsewhere in the body. Outside infection is most frequently pneumococcal and usually demands early cauterization, chemical or thermal. Personally I believe that the latter is more efficacious because its effect can be more accurately regulated and because it does not poison the surrounding tissues. Chauffage is best used only in the very mildest cases, or valuable time and possible eyes will be unnecessarily lost. Optochine, powdered calomel, and milk injections are accessories which should practically always be used.

Perforating corneal wounds of course demand removal of foreign matter, excission of iris prolapse, corneal suture, and the application of a conjunctival flap. During this operation, it is especially important that lid spasm be prevented, if necessary by akenesis or canthotomy. Anesthesia by means of 10m. of a 2% novocain injected back of the eye ball and as near the upper temporal apex of the orbit as possible, is advisable if vitreous loss is not thus precipitated.

Infected perforating or non-perforating corneal wounds should never be bandaged nor should any other injured eye in which there is a purulent discharge.

The principles of treatment following corneal electric, heat, and chemical burns, both acid and akaline, is practically that mentioned for conjunctival burns except that atropine, very dark glasses, and sedatives are more frequently necessary.

Perforating and non-perforating wounds of the sclera are best treated like those of the cornea though the increased possibilities of intra-ocular infection, vitreous loss, uveal prolapse, lens dislocation and opacities, vitreous hemorrhage and sympathetic ophthalmia make these injuries especially fatal to sight.

Lens opacities following injury may include dislocation, perforation, or concussion. Lens dislocation is much more frequent than commonly thought. Every severe blunt injury of the eye can be accompanied by a dislocated lens which is recognized by pupillary eccentricity or partial immobility and by unusual depth of the anterior chamber. These symptoms should always be noted that the injured may later have a reasonable chance to obtain the compensation due him. Traumatic cataract only develops often in from six months to two years often after an apparently slight injury following which vision was but little impaired. The advisability and technique of traumatic cataract removal unfortunately cannot be discussed because of limited time. Excessive operative trauma must never be forgotten especially in industrial surgery. I have repeatedly seen eyes apparently lost because the operator did not have a preconceived plan of what had to be done and because he did not know when to stop.

The Giant Magnet has in my hands been the means of saving quite a few eyes notwithstanding that the visual results at the end of six months are less dramatic than the actual removal of the foreign body. Foreign bodies in the orbit, unless irritating, are usually best left alone, as also occasionally are non-irritating foreign bodies so imbedded in the posterior eye that the trauma necessary in removal, is sure to immediately destroy all vision which would otherwise possibly be retained for at least several years.

Of course the sooner totally blind painful eyes are removed the better. Sometimes, however, it is extremely difficult to fortell the ultimate visual loss, immediately after an injury. I have in mind a patient who, following a severe ocular injury, fortunately refused the advice of several excellent ophthalmologists to have an eye removed. His later vision improved to about 20/70 with glasses and his other eye was subsequently lost. After a severe intra-ocular infection following perforating injury, the patient has two courses of action. The first is prompt enucleation which means immediate relief from pain and possible resumption of work within one week. The other is more palliative treatment with possible evisceration and continuance of pain indefinitely. The justification of an enucleation in the midst of a panophthalmitis might be difficult if a meningitis developed shortly afterwards. It is well to have a physical examination including urinalysis made before any industrial operation involving the eye ball in order to forestall any possible general complication, as illustrated in the case of a patient who died of acute nephritis two days after an enucleation. The technique of an enucleation is of little importance if the orbital tissues are not traumatized because here every cut means a scar and every scar means a worse fitting artificial eye. Among other things, the world war taught us that suturing of the conjunctiva, Tenons capsule, the extra ocular muscles is of little practical importance if the orbital contents are not mutilated.

The prompt recognition of posterior surface, corneal opacities, aqueous turbidity, iris nodules, marked thickening, and synechia, which form part of the early objective findings of sympathetic ophthalmia, is greatly facilitated by the corneal microscope. I have seen but one unquestioned case in six years, but that was enough because total blindness followed. Recently we attended a patient on whom enucleation was advised because of threatening sympathetic ophthalmia, in which the symptoms were entirely due to very small imbedded

foreign bodies in the cornea of the supposedly sympathizing eye.

In choroidal ruptures and optic nerve avulsions, but little can be done except to note carefully all objective evidence, to facilitate equitable disability estimations.

Delayed healing of ocular injuries caused by sickness elsewhere in the body often presents a difficult problem. The injured naturally feels that if the ocular accident had not occurred, that there would have been no involvement from sickness elsewhere in the body, while employers and compensation companies hardly feel responsible for conditions caused by general sickness such as lues, tuberculosis, or focal infections. Where the ocular injury is proven and ocular evidence of general sickness appears with reasonable promptness, it is usually to the employer's advantage to give the injured any general treatment necessary to facilitate ocular recovery and to have any necessary bodily examinations made to determine the existing general sickness responsible for the probable increased temporary and permanent ocular disability. The time to minimize delayed healing is when it begins and not when the eye is so saturated with toxines that healing is impossible for months even though all causes be removed.

Unfortunately most employers have not realized that the physical examination of prospective employees under ordinary circumstances is a profitable investment. I believe that courts of law hold that where an employer does not examine a prospective employee that the employee is assumed to be physically fit, so far as industrial injuries are concerned.

Unfortunately there are a small number of persons who try to take an unfair advantage of industrial injuries either by evading just payment to the injured or by claiming compensation unfairly. This usually involves an ocular complication of a general disease not cause nor aggravated by industrial injury, a previous injury or disease claimed to be recent, the exaggeration or other misrepresentation of an injury sometimes received while industrially employed. Here one must take nothing for granted. Subjective symptoms must be verified by objective findings to facilitate justice to all concerned.

The ophthalmologist who expects to take up this field of effort should realize that he is judged in every case by the duration of temporary disability, the amount of permanent disability, the number of visits, and character of reports rendered, which incidentally are potentially all court records. Unfortunately attempts to take advantage of industrial insurance companies by physicians either through useless visits and extortionate charges or the bolstering of unfair claims, have justly made them conservative in their dealing with strange physicians.

The equitable estimation of partial ocular disabilities of transferring lost vision into dollars and cents sometimes becomes complicated. The several methods now in use will probably be very shortly superseded by that recommended in the report of the American Medical Association committee on "Compensation for Eye Injuries," approved by the House of Delegates in 1925, which is the best single plan thus far devised.

It is based on the co-ordination of the central visual acuity, the visual field and the muscle function. The numerical factor representing the central visual acuity is obtained by adding the distance and near factors as measured on the Snellen Scale, the near factor being multiplied by two. See table one and chart one of the committee's report in the proceedings of the ophthalmological section for 1925. Thus, if a person corrected with glasses has a vision of 20/100 in the injured eye, this being rated at 49% visual efficiency, and with glasses 14/42 for near, this representing a

70% visual efficiency, the central visual efficiency is $\frac{49 + (70 \times 2)}{3} = 63$ central visual acuity factor. Correcting glasses must not exceed four dioptors spherical difference for the two eyes and illumination of test chart must vary between three and six foot candles.

The visual field must be determined with a one degree white target under a minimum illumination of three foot candles and charted against the committees "Industrial Visual Field Chart."

The third factor or muscle function is measured in all cardinal directions by the ordinary methods of testing double vision, such as the prism test, Maddox Rod test, etc., and charted against the committees "Table II."

Thus the industrial efficiency for the injured eye is the result of the three factors multiplied by each other. Thus, if the central visual factor is 20, the field factor is 60, and the muscle function factor is 100, the total visual efficiency of the injured eye is .24% of a perfect functioning eye.

Should it be desirable to obtain the industrial efficiency of the individual, assuming that the one eye is normal, the normal eye is given a three fold value, that is multiplied by three and added to the other eye, the whole being divided by four. Thus, assuming that the efficiency of one eye is 50% and of the other eye 100%

$$\frac{(50 \times 1) + (100 \times 3)}{4} = 87.5\%$$

In other words, the individual is supposedly 12.5% disabled because he has defective sight in one eye which represents a loss of 50% of that eye.

The difficulties which this method presents are that in all cases there are four variable factors, distant vision, near vision, visual field, and muscle function which must be accurately understood which necessitates verification by different methods, all of which require time, patience and experience. I do not believe it is possible for one to examine a moderately complicated case, assuming that the patient really wishes to co-operate and has made moderate intelligence by one thoroughly familiar with industrial work and with this system of rating in less than five hours of continuous work. Thus, the estimation of ocular disabilities becomes more expensive and complicated. Whether or not this is necessary remains to be seen.

DISCUSSION.

Dr. T. E. Wright (Monroe): Nothing gives me more pleasure than to listen to the paper of a specialist when he doesn't go over the head of the average doctor. Unfortunately, some specialists are so scientific that the average paper might as well be written in Greek so far as the average doctor is concerned. The author of this paper has been very characteristic, as he usually is, in making his paper extremely practical and bringing it down to the basis of the average doctor who has to deal, whether he wants to or not, with a great many eye injuries and the results.

I am particularly pleased to have this opportunity to congratulate him on this particular phase of his paper, and it is my intention, when the paper is printed, to keep it in hand for reference for immediate service in usual eye injuries coming to my office.

Dr. J. J. Bennett (Ruston): I haven't anything to add to Dr. Bahn's able paper except to emphasize one thing which he touched upon and that is this, which of course is really a legal aspect and still we as physicians and the employers should understand it, that regardless of the fact that the injured employe may have syphilis or tuberculosis, if a very trifling injury results in a manifestation of this syphilis and the loss of the eye, the employing company is responsible in the courts for the loss of that eye. This as I say is a legal aspect but it is important for us as physicians to recognize it and also for the company for whom the individual is working.

Dr. H. Dickson Bruns (New Orleans): The paper I think is going to be of value to the general practitioner to consult when he has injuries that are slightly beyond the average run of those he usually sees.

Two points in the paper I think ought to be emphasized. All doctors should keep on their minds the horrible mortality in our country from

automobiles. People are allowed to take a machine weighing one ton or more and rush it at a speed of twenty-five or thirty or forty miles down a highway or street, and most of those people have never received any examination of any kind whatever and then we are surprised that thousands of people are killed and injured in a year by machines.

The other point that I think every man who is a doctor and has to see an injured eye every now and then ought to bear in mind is, don't use atropine if you can't estimate tension with your fingers. If you don't know whether an eye is normal in its tension to the touch then don't put atropine in it, because every now and then you commit an eye murder if you do. You bring on acute glaucoma and the eye is lost.

Dr. Bahn (in closing): Generally speaking, employers are realizing more and more that it is neither profitable nor desirable to employ those unnecessary liable to injury or disease. Employers have a right reasonably to examine prospective employees to determine their mental and physical fitness for any given position, and if this is not done the assumption is that the employee is in reasonably good health and is not excessively liable to injury.

It is important that the general physician understands the fundamentals and risks involved in the treatment of eye emergencies in order to render efficient first aid and to afford the injured the greatest chance of recovery.

INTRACRANIAL HAEMORRHAGE OF THE NEWLY BORN.

CHARLES J. BLOOM, M. D.,

NEW ORLEANS.

Although one hundred years have elapsed since spastic paralysis was first associated with intracranial haemorrhage of the newly born, strange to relate, but scant literature can be found pertinent to this subject prior to 1912.

Incorrect diagnoses of early symptoms and the absence of observation on spinal punctures of the newly born, may have been in a way partially responsible for the apparent lack of interest on this seemingly important subject.

*Read before the Louisiana State Medical Society, Monroe, April 15-17, 1926.

At last the pendulum has swung—medical literature now abounds with articles from various aspects, including both the primary and the resultant clinical manifestations. The medical profession as a whole is intensely concerned, so that we are assured in the near future of concerted efforts. With early recognition and immediate treatment, gratifying results will be noted, and the many unfortunates now inmates of institutions of the feebleminded, cripple and insane—will be reduced to a minimum.

From 1826 to 1835, Denis, Billard and Cruveilhier published papers of extreme interest, suggesting the casual relationship of intracranial hemorrhage at birth and the later cerebral spastic paralysis. Weber, Virchow (1852) discussed cerebral palsies from the anatomic point of view. Little (1843) stated in his first monograph that spastic paralysis was due to lack of development of the cerebral tissues and meningitis inflammatory process, and cerebral palsies associated with trauma of the brain are mentioned rather casually. But in 1862 he changed his opinion after many post-mortem examinations and attributed 75% of the cases of cerebral spastic paralysis to an intracranial hemorrhage at the time of birth.

West, in his text of 1850, remarks that "Cerebral hemorrhage in childhood is oftenest met with immediately after birth; and no circumstances can be imagined more favorable to its occurrence than those which then concur to produce it. The tumid scalp and livid face of many a stillborn infant point to one of its most important causes, since they are but a measure of that extreme congestion of the vessels within the skull, that has at length ended in a fatal effusion of blood upon the surface of the brain.

There would be reason to fear that this occurrence had taken place, if an infant, when born, were to present great lividity of the surface, and especially of the face; and if the heart were to beat feebly and at

long intervals, although the pulsations of the cord were slow and faint or had altogether ceased. Under these circumstances death sometimes takes places without any effort at respiration being made, but at other times the child breathes irregularly, imperfectly and at long intervals. The hands are generally clenched and spasmodic twitchings are of frequent occurrence about the face, or these twitchings are more general, and more severe, and almost amount to an attack of convulsions. The symptoms, however, are by no means uniform, and probably are in some degree modified by variations in the seat as well as in the quantity of the effusion, for it sometimes happens, even in cases where a very large quantity of blood has been poured into the arachnoid cavity, that the breathing is little or not at all disturbed, and that after living for a few hours in a state of weakness and torpor with chillines of the whole surface, the child dies without any sign of convulsion."

Kundrat (1890) discusses the pathologic anatomy of these subdural hematomas, and Finckelstein in 1902 and Seitz in 1907 and Beneke (1910) contributed many interesting deductions regarding birth, trauma, symptomatology, brain hemorrhage and lacerations of the tentorium.

Seitz, 1912; Leclerq and Paput, 1913; Green, 1914; Brady, 1918; Warwick, 1919; Foote and Sidbury, 1920; Vaglio, 1921; Ehrenfest, Munro & Eustis, Schwartz, Henkel, 1922; Ehrenfest, Sharp, Dietrich, 1923; Brady, Foote, Saenger, Sharp and Maclaire, 1924; Foote, Sharp and Maclaire, 1925,—have made the most valuable contributions on the various phases of the subject.

THE FREQUENCY OF CEREBRAL HAEMORRHAGE.

Pott, (1911) summarizes his one hundred and one (101) autopsies with fourteen tentorial injuries that "some residue of intracranial hemorrhage can be discovered in a considerable number of the children coming to post-mortem up to the age of 6 months, proving the percentage of tentorial tears must be very great."

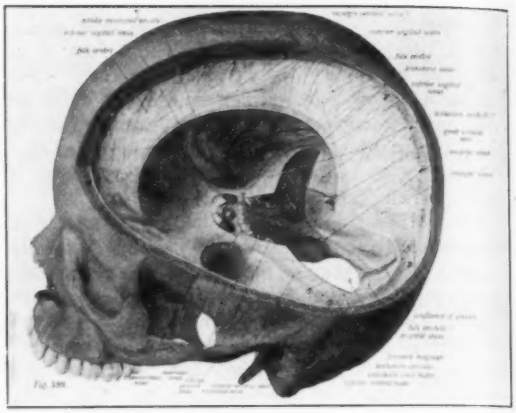


Figure No. 1—Cross section of skull (illustrating the bony surfaces and blood vessels involved in the injuries of intracranial haemorrhage of the newly-born.)

Bauereisen (1912) reports in six hundred and sixty-seven (667) autopsies eleven (11) tentorial injuries, all of which were operative cases. Forty-seven (47) still births, or infants dying a short time after birth, are included.

Benthin (1912) in one thousand two hundred and thirty-nine (1,239) consecutive labors, noted 107 still born and children dying a short time after birth. Seventy-three (73) came to autopsy, with (8) tentorial tears, or 11%.

Meyer and Hauch (1913) in their series of sixty-four (64) necropsies of the newly born, attribute twelve (12) deaths in the twenty-eight (28) tentorial injuries recorded, and conclude that fatal tentorial tears constitute 2% of all labors.

Leclerq and Paput (1913) mentioned in their observations an incidence of fourteen (14) intracranial hemorrhages in thirty (30) autopsies held.

Henschen (1913) found 2.2%, or 29 out of 1277 post-mortems of the newly born.

Kowitz (1914) deducts that the dura is most often involved and the cerebral tissue the least frequently injured in a series of 6,000 cases.

Moreno (1915) cites ten tentorial tears in a series of 40 cases.

Hendren (1918) reports 9.3% intracranial hemorrhages in a series of 700 postmortems. Of these, 65 cases, with injuries, 50 were spontaneous labors, 23 full term, and 27 premature. Suggests syphilis as a predisposing factor, and stresses the striking frequency of coincident echhymosis in other serous membranes associated with intracranial hemorrhage.

Vischer (1919) 186 cases with 74 injuries; Warwick (1918) 36 cases with 18 injuries (only two of which was represented by long labor) and Bailey (1920) 100 cases of which 40 showed evidences of injury (of which 30 were still born infants—17 cases were normal and spontaneous).

Rodda (1920) from statistics of the New Born Clinics of the University of Minnesota, concludes that 50% of all infants that die intrapartum or during the first few days of life, even after an easy delivery, but frequently after breech and premature labors, succumb to intracranial hemorrhage.

Schaefer's (1921) series of 680 cases with 140 injuries (43 infants born after difficult forceps extraction, 39 had serious tentorial tears), is most significant.

THE FREQUENCY OF CEREBRAL HEMORRHAGE.*

The following are some figures relating to the frequency with which cerebral hemorrhage has been found in the stillbirths (macerated foetuses excluded) and neo-natal deaths:

	Stillbirths	Percent	Neonatal deaths (including neonatal)	Percent
Herbert Spencer (1891)	130	41%		
Holland (1919)	167	55%		
Capon (1920)	52	46%	28	21%
Browne (1921)	92	24%	80	44%
Cruickshank (1922)	200 (premat.) stillbirths and neonatal deaths,			28%
Kennedy (1922)	200 Mature stillbirths and neonatal deaths,			32%

Recent American and continental workers have published much the same results.

*(English statistics from Proceedings of Royal Society of Medicine, Session 1923-24, Vol. 17; Sections of Study of Disease in Children. Neurology, Obstetrics, and Gynecology, and Orthopedics.)

Brandt (1925) reporting the statistics for Bronx, New York City, stated that there were 15,160 babies born during 1924, of which 629, or 4.1%, were stillbirths and 469, or 3.1%, died during the first month of life, making 1,098 potential deaths of this series during the first month of life.

Sharpe and Maclaire (1926) summarize their theories of five hundred consecutive new born babies on whom the lumbar puncture was performed within 12 to 24 hours after birth. Forty-five, or 9% of the babies, disclosed a bloody and blood-tinged cerebrospinal fluid. Consider that one baby died before lumbar puncture was performed, and fifty babies were not tapped, and in thirty-six a dry tap was recorded, and in fourteen the test was not performed due to shock and prematurity.

SPINAL PUNCTURE.
(Foote Technique.)

In spinal puncture, or lumbar puncture, the hollow needle is pushed into the arachnoid space at the lower level of the third or fourth lumbar vertebra.

In the new-born child this procedure is somewhat more difficult than in the older child, because of the smaller interveterbral spaces and the lack of development of the spinous processes and the intravertebral ligaments. In the new-born the following points should be observed:

1. Always enter the needle in the median line of the spine directly through the ligament, to avoid puncturing the vertebral veins which lie laterally in the vertebral canal.

2. Always use a small gauge needle, not larger than 20. The needle must be sharp and not rusty. The ordinary needle used

CASE No. 1

for intravenous transfusion is quite suitable.

Position—The child is placed on a small table, his back to the operator's left hand and facing the assistant. The assistant with his right hand grasps the child by the neck, near the shoulders, and with his left grasps the thighs near the knee, and sharply flexes the thighs on the abdomen to such an extent that the child's back is made convex. Lack of alignment between shoulder and hip must be prevented if the child attempts to struggle.

The back is washed with green soap, scrubbed with alcohol, and a line one-half inch in width, running perpendicularly from the spine of the ileum directly downward across the back, is painted with tincture of iodine. This should bisect the level of the fourth lumbar interspace.

PROCEDURE.

1. The child is brought to the edge of the table.

2. Sterile towels are placed under and over the field.

3. The operator wearing sterile gloves, marks the level of the fourth lumbar interspace with the left index finger or thumb and grasps the needle between the thumb and first two fingers of the right hand, the base of the needle resting in the palm of the hand.

4. The needle is passed in the soft space felt between the vertebrae at right angles to the plane of the infant's back, going first through the skin, then through the ligament, and finally with a release of resistance, into the vertebral space. It enters the medullary canal in the new born at a depth of one-half to three-fourths of an inch.

5. The obturator is withdrawn. If fluid does not follow, rotate and very slightly withdraw the needle. If no fluid appears now, push the needle very slightly forward. If, after half a minute, thick secretion is seen, blocking the needle, a syringe containing normal salt solution may be attached to the needle and a *very small* quantity injected, and then aspirated. This often serves to establish the flow.

6. If the canal has been properly entered fluid will drop or spurt out, depending on the amount of intracranial pressure. In the new born the normal rate of flow is about 30 drops a minute.

The spinal fluid and lumbar puncture: This procedure is a distinct therapeutic value in infratentorial hemorrhages, but is neither simple nor easy. At times, the vertebral veins are punctured and the fluid is colored with a bright red blood. This fluid will become less colored if the above is true, as additional fluid is withdrawn, but if it is due to hemorrhage, there will be but little change in the color. At times old clotted

blood is noted in infratentorial types. Cervical hemorrhages, of some days standing, may appear yellow or may be unchanged. Absence of microscopic blood in the spinal fluid may, at times, be of little significance—when supratentorial hemorrhages are present. Crenation of red blood cells is most significant in injuries below the tentorium.

In contrast to the fluid one would expect to find in cases of intracranial hemorrhage containing blood and blood derivatives—at times deep red in color, etc.—there are instances when perhaps days have elapsed and a yellow fluid is obtained. There are variations in color and reaction and these are classified into three types of yellow spinal fluid:

1. Xanthrochromia (Froin syndrome).
2. Erythrochromia (Haynes).
3. Nonne syndrone.

The color of this fluid is increased by the transudation of the blood plasma when red blood cells are absent and due to minute hemorrhages when blood cells are present.

1. Froin syndrome, 1903. Bright yellow color—rapid massive coagulation—high albumin and fibrin in content producing the clotting effect—increase cell count. Found in vertebral brain and spinal cord diseases where obstructions or interference to the cerebrospinal circulation is produced.

2. Hayne, 1906. Brownish red to deep amber—color changes from day to day—contains red blood corpuscles—does not clot and the tests for hemoglobin are positive—mild transudate from the blood are due to varying degrees of hemorrhage.

3. Nonne, 1910-1913. Yellow or colorless—protein content excessive but there is no cell increase.

INTERESTING FACTS.

1. Intracranial anatomy of the blood vessels in the newly born child is different from that of the adult, therefore, more liable to injury than ordinarily conceived.

2. Syphilis,—toxemic conditions of the mother,—early low forceps,—and hemorrhagic diseases of the newly born are relatively unimportant as factors in the production of intracranial hemorrhages of the newly born.

3. The anterior fontanelle does not appear to be a reliable index of a mild increase in intracranial pressure.

4. A modified sub-temporal decompression and cranial drainage should be advocated only when the lumbar puncture fails.

5. Manometric readings of intradural pressure should be taken with the spinal mercury-manometer in all suspected cases of hemorrhage of the newly born, but are not as conclusive as in adults.

6. The loss of 2 oz. of blood in a 5 pound infant is more than equivalent to the loss of one-half gallon of blood in 160 lb. man.

7. In modern textbooks of obstetrics the question of the cranial birth trauma expresses entirely erroneous views, and elaborate statistics of neonatal mortality never mention or classify the one important common cause, viz: intracranial traumatic lesions.

FETAL HEART BEATS.

Baumm (1917) in a series of careful observations on parturient women combined with autopsy studies of all stillborn infants, concludes:

1. Fetal tachycardia appearing without a preliminary bradycardia, in the course of a protracted labor of an afebrile woman is pathognomonic for a threatened intracranial hemorrhage.

2. Foetal tachycardia preceded by bradycardia, is rather suggestive of the fact that the hemorrhage already has occurred.

3. Foetal tachycardia, followed by bradycardia, probably is the beginning of a mechanical asphyxiation.

THE CAUSES.

Compression of the fetal head, with a small reduction of the volume of the skull,

CASE No. 3.

but leading to a rather marked change in its shape—illustrates an integral element of every labor. From the experience of others, this change that occurs is free of any marked injurious effect on the child, and under normal conditions a process is present, which precludes a marked increase of intracranial pressure. The protection of the contents of the skull, and more important of the brain tissue itself, is assured by the escape of a small amount of the cerebro-spinal fluid toward the spinal canal; by hastened absorption of the fluid into lymph vessels and also by a considerable reduction of the volume of blood within the brain. This process of moulding necessarily affects a change in the normal position of adjoining skull bones, which is most pronounced about the sagital suture. When overriding of the parietal bones occurs, the subjacent dura is stretched and folded. When excessive overlapping (mechanical dystocia) or the birth is suddenly precipitated, either by forceps extraction or large doses of pituitary extract, or if the dura is unsually fragile, due to prematurity, the dura may break and, at times, the longtitudinal sinus may be torn open, including occasionally, the veins at the site of the sinus. If these vessels are engorged, asphyxiation may result, and they may break under a relatively smaller strain.

I. Trauma. II. Congestion or asphyxiation. III. Hemorrhagic diseases of the newly born.

I. *Trauma:* (a) Protracted labor. (b) Forceps. (c) Precipitated labor. (d) Advanced age of the primipara. (d) Obstetrical operations and maneuvers (version, difficult extraction and Caesarean).

II. *Congestion or asphyxiation:* (a) Obstetrical operations and maneuvers; (version, difficult extraction, Caesaraen). (b) Syphilis. (c) Asphyxiation (short cord—frequent wrapping of cord around neck). (c) Prematurity and twins. (d) Deficient oxidation due to chloroform inhalation (Graham, 1912).

III. *Hemorrhagic diseaes of the newly born:* (Diseases in which minor injury through innate tendency to bleed is made dangerous.)

CAUSES OF CYANOSIS IN THE NEWLY BORN.

I. *Intracranial hemorrhage of the newly born.*

II. Small anterior fontanelle with overlapping of the cranial bone.

III. Thymic disturbances.

IV. Congenital heart disease.

V. Congenital atelectasis of the lungs.

VI. Septic infections (umbilical, including pneumonia, etc., usually after the fifth day.

COMMON CAUSES OF FEVER IN THE NEWLY BORN.

(1) *Intracranal haemorrhage of the newly born.*

(2) Inanition fever.

(3) Septic infection of the newly born.

(4) Tetanus.

THE CASES.

These five cases now described in detail are characteristic of the various types of intracranial haemorrhage encountered by the practitioner:

Case 1. James W., the second of two children, was born February 8, 1926. There was nothing of particular interest in the family history. He was delivered by Dr. John F. Dicks and a few hours later was referred to me. A 7 lb. well developed child, showed no external evidence of his precipitated delivery, though the position was a face presentation. However, he did not cry very much and his efforts in this respect were more in the nature of a moan. Other than phimosis and overlapping of the sutures (cranial) the infant seemed normal in every respect.

Case No. 2. Arthur B., age 3 days, was referred to my associate, Dr. de la Houssaye and self, by Dr. Wilkes Knolle on April 4, 1924. He was the only child of healthy parents, born at full term, and a normal labor. He seemed rather quiet, refused to nurse, and subsequently developed convulsions, clonic in type, occurring at irregular intervals, averaging at least one per hour for a period of two days. The skin was very dry, the fontanelle full and pulsating. Spinal puncture was made, a large amount of pure blood was obtained and 40 cc, of whole blood was given subcutaneously. The child began immediately to improve, complementary feedings of Dryco were added, and his progress has been most satisfactory from a mental and physical aspect. Unfortunately, he was not brought for observance from January 1, 1925, to March 27th, 1926. The left leg shows a slight shortening, and a mild rigidity of the left ankle, but, other than this, he seems to be normal in every way. Orthopedic measures will correct this deformity.

Case No. 3. Catherine McW., born June 22, was delivered by Dr. John F. Dicks and referred to us two days after birth. Weight 7 lbs. 15 oz. High instrumentation had to be resorted to and an examination revealed a slight trauma on the left side of the head, where the instrument had been placed. The anterior fontanelle was extremely small, and the child showed a disinclination to nurse, and failure to cry. Clonic convulsions at irregular intervals occurred on the 25th and 26th. Spinal puncture was made on the 25th, a bloody spinal fluid being obtained under pressure. 20 cc. of whole blood, obtained from the father,

Date	Weight	Food	Symptoms	Treatment and Orders
2/8/26	7 lbs.	5% dextrose.	Vomited after each feeding.	Breast every 4 hours, 5 min., complemented with dextrose solution.
2/9/26	7	5% dextrose.	Vomited after each feeding.	Breast every 4 hours, 5 min., complemented with dextrose solution.
2/10/26	6.5	Dryco formula.	Vomited after each feeding and refused to nurse. Baby somewhat rigid through day.	Feed formula with medicine dropper.
2/11/26	6.3	Dryco formula.	Opisthotinus and vomiting (continuous). Scrotum increased in size due to intraperitoneal injection. Fever 105 signs of ianition fever.	100 cc. 5% glucose by hypodermoclysis. 100 cc. normal saline intraperitoneal. Spinal puncture revealing red blood, about 30 cc. was obtained, somewhat under pressure. Atropin 1/1000 by hypo. before feedings. Breck feeder.
2/12/26		Dextrose 5%.	Cyanosis, vomiting and labored respiration, moan, and rigidity. Fever, maximum 106¾. Clonic convulsions.	Spinal puncture about 25 cc. Chloroform water, whiskey, 100 cc. saline, hypodermoclysis. 100 cc. of 5% glucose, intraperitoneal.
2/13/26		Lactose solution 5%.	Shrieks at times, rigidity much less; retained some feedings. Difficult to arouse. Temperature 103, (maximum).	100 cc. saline hypodermoclysis. 100 cc. 5% glucose intraperitoneal, whiskey by mouth.
2/14/26	6.11½	Mother's milk and 5% solution.	Vomited once, retained all other feedings. Temperature 103, (maximum).	100 cc. saline hypodermoclysis. 100 cc. 5% glucose intraperitoneal; whiskey by mouth.

From this time on, there was a gradual increase in weight and on the day of his discharge from Touro Infirmary, February 23rd, the child weighed 7 lbs. 4¾ oz. Other than a sluggish pupillary reflex, the child now nine weeks old, weighs 11½ lbs. and, as far as can be judged seems normal in every respect. Acknowledgment must be made to the faithful care given this child by our resident interne, Dr. Henry Leopold, of Touro Infirmary.

CASE No. 4.

was immediately given subcutaneously, with rather encouraging improvement. On the 26th, a second spinal puncture was made—the fluid being under less pressure and distinctly lighter in color. Whole blood 20 cc. was again given subcutaneously. In the early A. M. of the 27th a few convulsions were noted. From that time on everything seemed to adjust itself and we have today a normal child in every respect.

Case No. 4. Roy M., Jr., was referred to us by Dr. Denegre Martin on the same day of its birth, June 4, 1925, after a very difficult delivery in which low forceps were used. There seemed to be respiratory difficulties and various methods of resuscitation were used. On the 6/6/25 frequent convulsions occurred in the early A. M. A lumbar puncture was performed and a bloody fluid, 8 cc. in amount, was obtained. The convulsions were controlled with chloral hydrate and bromide. Immediately 40 cc. of whole blood was given subcutaneously, obtained from the father, and the same afternoon, two hours apart, 1½ cc. of fibrinogen for two doses was administered subcutaneously. The fever, 103, quickly dropped to normal in a period of 24 hours, the child began to nourish and the other symptoms became of less intensity and, at the end of two additional days, the child seemed to be on the road to recovery. He is now 10 months of age and apparently normal in every respect.

Case No. 5. Sarah E., age 11 days, was referred by Dr. A. L. Lewis, of Amite, La., on the 21st of April, 1925. Though weighing 9 lbs., she was delivered at full term, apparently normal. At 4 days the mother noted attacks of severe blueness with the loss of breath. Other than the past history, the examination revealed nothing that would have in the least way intimated the suggestion of intracranial hemorrhage of the newly born. Thymic asthma and intracranial hemorrhage of the newly born were seriously considered as the possible causes for the cyanosis. The radiological examination of the chest showed evidence of enlarged thymus to the left with no other evidence of pathology and 50 mg. of radium for 6 hours was applied. This conclusion alone was not satisfying and a lumbar puncture was suggested. Parental objection to this intervention prevented my so doing. Subsequently, after repeated requests, the child was again brought to the city, the examination (X-ray) showed complete disappearance of the thymus gland with history of spells, though mild in character, continuing at irregular intervals. On the 24th of April, 1925, the baby was admitted to Touro Infirmary and spinal puncture was performed on the 25th and 2½ oz. of pure blood was obtained. On the 26th a spinal puncture was repeated and only a few drops of blood was noted. From this, up to the present time, there has been no recurrence of the convulsions and a letter received April 14th, 1926, expresses her present state of being: "Sarah K. has never been sick after having your treatment, except one little spell with her bowels. She held her head erect at 4 months, sat alone at 5 months, crawled at 7 months and walked at 10½ months. Today she is one year of age, weighs 22 lbs. and is 27½ inches tall. Her sight, hearing and sense of balance is perfect. She takes good steps and is very steady on her feet. She is beginning to talk, says 'mama,' 'daddy,' 'bye-bye,' and asks for water—blows out matches, and, in fact, does all cute little things that a baby should do."

CLASSIFICATION.

A. Hemorrhage.
   1. Cephalhematoma internum.
   2. Subarachnoidal hemorrhage.
   3. Dural haematoma.
      a. Supratentorial.
      b. Infratentorial.
      c. Mixed type.
   4. Brain hemorrhage.
      a. Ventricular.
      b. Diffuse or circumscribed.

B. Lesion without hemorrhage.
   1. Contusion cerebri.
   2. Ischemic areas.
   3. Slight tentorial laceration.

HEMISPHERIC.	INFRATENTORIAL
Infant cries a great deal during first few days.	Infant usually is very quiet, apparently is sleeping or is comatose.
Breathing center becomes affected comparatively late. Infant is pale.	Breathing center, as a rule, is affected early. Infant is cyanotic, especially during convulsion.
Death may be delayed. Fontanel becomes tense within comparatively short time.	Death usually occurs early. Fontanel at birth is practically normal. Increased tension, if at all, becomes noticeable only later.
Prompt appearance of symptoms of intracranial hypertension. Rigidity of neck and epistothotones hardly noticed. Symptoms from affection of facial and oculomotor nerves at first may be unilateral.	Symptoms of hypertension appear late. Rigidity of neck and epistothotones usually marked. Symptoms from affection of facial and oculomotor nerves, as a rule, immediately are bilateral.

THE COAGULATION OF BLOOD.

The simple methods of testing the coagubability of blood are given in order that the general practitioner may have the means of classifying his cases, and might resort to these procedures at the bedside if necessary.

Rodda's method may be briefly described as follows: The heel of the infant is cleansed with ether. A puncture is made with a sterile lance blade, deep enough to produce a free flow without requiring any squeezing of the skin. A clean watch glass containing a No. 6 shot receives the second drop of blood. Another watch glass is inverted over the first. The glasses, held together, are gently titled every thirty seconds until the shot no longer rolls, but is fixed in the clot. In the end the shot is so firmly imbedded that the glass may be inverted without dislodgment of the shot. Normal coagulation 7 minutes, limits 5-11 minutes.

Duke's method consists in making a stab wound in the heel and then without squeezing drawing away the exudated blood gently with blotting paper until bleeding has ceased. Normal coagulation 3½ minutes, limits 2-5 minutes.

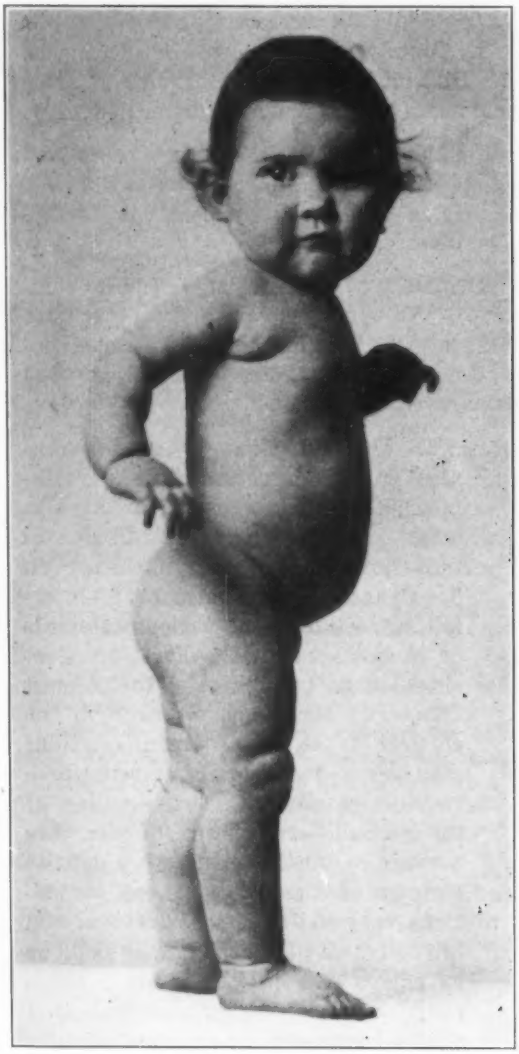
SYMPTOMS.

I. Massive Hemorrhage—1. Cyanosis. 2. Difficult breathing. 3. Tremors (arms and legs (noted a few hours after delivery).

No recovery in extreme cases and when there is an exception to the rule, it is considered by some as Little's disease.

II. Delayed Hemorrhage (most common)—No symptoms until focal pressure has developed within the skull—noted between 48 and 72 hours—a child appears apparently normal at birth.

1. Disinclination to nurse—lethargy. 2. Protruding tongue to an abnormal degree where hemorrhage is below tentorium cerebelli and due to irritation of glosse pharyngeal nerves. 3. Cyanosis, not permanent—intermittent, occurrng at various intervals or at times extreme pallor. 4. Consions—tonic twitchings of limbs, most frequently the arms, although in the cortical types, clonic manifestations may be noted—flexors of extremities—respiratory muscle groups—rolling of the eyeballs—twitchings of the face muscles — opisthetonous with definite rigidity of the neck. These convulsions vary in frequency, duration and intensity. If hemorrhages are small or an edema only limited in its involvement—same is quickly absorbed—and clinical signs may be so trivial and insignificant that they are apt to be overlooked or possible cannot be determined even by careful observation. Hemorrhage, supratentorial—cyanosis is late —retraction of head is not noted but fontanelle is firm and bulging. Hemorrhage infratentorial—fontanelle does not bulge early or not at all and epistotenous of the head is frequently seen. Localization of a site of the hemorrhage is very difficult in children. However, when facial and other cranial nerves affected exhibit paralysis of a bilateral type, the hemorrhage is infra-



CASE No. 5.

tentorial; and supratentorial (hemispheric) when paralysis is unilateral. Eye symptoms are misleading when paralysis occurs preceded by an irritative or tonic period in the muscle affected, tonic convulsions precede flacidity.

First 24 hours: 1. Irritability. 2. Disinclination to nurse. 3. Extreme lethargy. 4. Protruding of tongue.

Second 24 hours: 1. Tenseness of fontanelle. 2. Twitching of limbs (spastic). 3. Intermittent cyanosis or pallor.

TREATMENT.

Prophylactic: The obstetrician must be alert and accurate in his observations in order to limit the number of so called difficult labor cases,—pelvic measurements,—chronic diseases,—interpretation of fetal heart signs,—violent methods of fetal resuscitation,—each must have a place of importance. *Pituitrin and high forceps are responsible for the greater number of cases included in the intracranial hemorrhages of the newly born, and must be avoided.* Give the newly born the care it justly deserves—and do not allow the child to go unnoticed or to be placed in the care of a nurse without instruction—for the first few days are the important,—the vital days—as far as the infant's future life is concerned. DeLee remarks: "The pernicious doctrine that traction on the after coming head and similar procedures rarely harm the infants, must undergo complete revision." In cases of questionable signs and symptoms—where doubts are expressed—seek the consultation of a confrere and give the child a fair chance to live in this world of ours on an equal mental and physical basis with the rest.

In all difficult cases give 20 cc. whole blood (obtained from father)—either under the skin or intraperitoneal,—or substitutes rich in thrombin content.

Active—general methods:

I. Do not fondle—manipulate—or handle a baby.

II. Keep body warm, but do not burn.

III. Ice bag to head, if fever is high and continuous.

IV. No direct nursing or violent sucking—medicine dropper—Breck feeding—nasal feeding—preferably mother's milk;—in the absence of same 5% dextrose or lactose solutions is used. In prolonged cases

weak dilutions of dried and condensed milks.

V. If vomiting is a continuous symptom, and inanition fever is at hand, hypodermoclysis of 3 to 5% glucose solution is indicated. If loss of weight is extreme and baby appears pinched, intraperitoneal injection or an additional hypodermoclysis of normal saline solution is most necessary. This is particularly true in cases associated with umbilical and other infections where the antithrombic elements are proportionately increased.

VI. Fever—the choice of hydrotherapy and not antipyretics.

VII. Continued rest and constant watching by a trained nurse, with the exclusion of all visitors.

Active—local methods:

I. Blood. II. Spinal puncture. III. Surgery.

I. Blood: do not procrastinate and act rapidly. Blood transfusion (whole blood) from 10 to 20 cc. every six to eight hours for at least three injections. Thromboplastin, 10 cc. subcutaneously as a substitute for whole blood can be used for the same intervals and number of injections, or 1 cc. fibrogen. Horse serum (fresh), citrated human blood, can also be utilized—requiring, however, additional laboratory test and necessitating added surgical troubles and anaphylactic considerations. Transfusion, or infusion, through the fontanelle into the superior longitudinal sinus, requires practice—special needle and quick cooperation and is attended with a certain element of risk. The good results obtained by the former plans relegate this plan to a secondary choice.

II. Spinal puncture: Intracranial hemorrhage in the newly born, being such a serious clinical entity, allows all forms of treatment that may ultimately benefit the child. Advisability of using lumbar puncture as a form of treatment is justifiable as a remedial measure. Said procedure is at times neither simple nor easy—dry taps and failure to puncture the spinal canal within given limits are often mentioned by observers. Spinal puncture is quite necessary for infratentorial hemorrhages, but at times may not assist materially in supratentorial hemorrhages—in such cases ventricular puncture may be co-indicated. Repeat every 6 to 8 hours until the fluid is but slightly colored or, at best, colorless.

CASE NO. 6

III. Surgery: Surgery has been suggested by Cushing, although in the experience of Grulee, it has been anything but successful. Providing the coagulation time has become normal, but symptoms still persist, surgical intervention must necessarily be made within a period of a week to be of any particular value.

COMPLICATIONS.

I. Fever (severe cases).

II. Bleeding from mucous surfaces.

III. Persistent vomiting—not usual—generally fatal.

IV. At times spinal cord injury—flaccid paralysis of a bilateral type.

In closing let me ask the profession as a whole to examine thoroughly the newly born, and where ever there might be the slightest suspicion of doubt, give the child a fair chance to be normal. Although there are cases in later life with definite evidences of spasticity—where birth histories and signs were wanting the percent of this group is extremely small. The photograph (Case No. 6) in itself is the conclusion of a case not properly treated at birth, although in this instance our knowledge on this subject at the time of her birth was most limited.

BIBLIOGRAPHY.*

Prior to 1912.

Benis—Commercy, 1826.

Billard—Paris, 1828.

Cruveilhier—Paris, 1829-35.

Little—Deformities of the human frame. London, 1843.

Virchow—1852.

Weber—1852.

Little—On the influence of the abnormal parturition, difficult labors, etc., upon the mental and physical condition of the child. Obstet. Trans. 3:243. 1862.

Partridge—Two cases of intracranial hemorrhage in the newborn. Amer. jour. obst. 1886, 19:497-500.

Kundrat—1890.

Fincklestein—Berl. Klinik, 1902. No. 168.

Couveclaire—Ann. de gynec. et d'obstet. 1903. 59:253.

Herzog—Ein Beitrag zur Lehr von den intracraniellen Blutungen Neuegeborenen. Muenchen, 1903. 24p. Wolf & Son.

Cushing—Amer. jour. med. sci., 1905, 130:580.

Carmichael—Scott. med. & surg. jour. 1906. 524.

Frazier—Trans. Amer. surg. Assn., 1906, 24:316.

Volland—Allg. Ztschr. f. Psychiat, 1906, 63:725.

Beneke—Muench. med. Wchsnshr. 1910:2125.

Couvelaire—Ann. de gynec. et d'obstet. 1907. 2d ser. 4:7.

Seitz—Arch. f. Gynaek. 1907. 82:528.

Seitz—Arch. f. Gynaek. 1907. 83:701.

Seitz—Winckels' Handb. d. Geburtsch. 3:3, p. 70.

Gans—Monatshcr. f. Geburtsh. u. Gyn. 1908, 27:430.

Vogt—Arch. f. Kinderh. 1908, 48:321.

Esch—Arch. f. Gynaek. 1909, 88:60.

Stumpf & Sicherer—Beitr. z. Geburtsh. u. Gynaek. 1909, 13:408.

Esche—Ztschr. f. Geburtsh. u. Gynaek. 1910, 65:52.

Bauereisen—Zentralbl. f. Gynaek. 1911, 35:1149.

Fischer—Ztschr. f. Kinderh. 1911, 2:248.

Hannes—Ztschr. f. Geburtsh. u. Gynaek. 1911, 68:689.

Pott—Ztschr. f. Geburtsh. u. Gynae. 1911, 69:674.

1912.

Bauereisen—Muench. med. Wchnschr. 1912, 59:1035.

Benthin—Monatschr. f. Geburtsh. u. Gynaek. 1912, 36:308.

Bonhoff & Esch—Ztschr. f. Geburtsh. u. Gynaek. 1912, 70:886.

Commandeur & Mouret—Bull. Soc. d' obst. et de Gynec. de Par. 1912, 1:213-15.

Gilles—Abst. in Jour. A. M. A. 1912, 59:1494.

Graham—Jour. exp. med. 1912, 15:307.

Haquet—Les hemorrhagies sous-dure-meriennes. spontannes chez les l'enfants. Paris, Rousset, 71p.

Herff—Zentralbl. fuer. Gynaek. 1912, 36:1704.

Meyer & Hauch—Arch. mens. d'obst. et de gynec. 1912, 1 [illegible]3. Abst. in Jour. A. M. A. 59:2196.

Paul—Dissertation, Halle. 1900, quoted by Seits. Zentralbl. fuer Gynaek. 1912, 36:1.

Seitz—Zentralbl. f. Gynaek. 1912, 36:1-3.

Waldstein—Zentralbl. f. Gynaek. 1912, 36:1704.

Wilke—Muench. med. Wchnschr. 1912, 59:1880.

1913.

Abels—Arch. fuer Gynaek. 1913, 99:1.

Doazen—Arch. gen. de chir. 1913, 9:10.

Frazier—Jour. A. M. A. 1913, 61:2096.

Klatz—Ztschr. f. Neurol. u. Psychiat. 1913, 8:1.

Leclercq & Paput—Gynecologie, 1913, 17:213-18.

Meyer & Hauch—Abst. in Zentralbl. fuer Gynaek. 1913, 37:707.

Henschen—Zentralbl. fuer. Gynaek. 1913, 37:925-31.

Tucker—Jour. A. M. A. 1913, 61:2096.

Wallich—Ann. de gynec. et d'obstet. 1913, 70:600.

Wilcox—Bost. med. & surg. jour. 1913, 168:568.

Winn—Jour. A. M. A. 1913, 61:2096.

1914.

Green—Bost. med. & surg. jour. 1914, 170:682.

Kowitz—Virchow's Archiv. f. Path. Anat. 1914, 215:233.

Kwoszek—Dissertation, Breslau, 1914. Abst. in Zentralbl. fuer Gynaek. 1921, 44:983.

Reuss—Krankheiten des Neugeborenen, Springer, Berlin. 1914.

1915.

Herrmann—Arch. ped. 1915, 32:583.

Mayer—Zentralbl. fuer Gynaek, 1915, 46:795.

Moreno—Arch. mens. d'obst. et de Gyn. 1915, 4:114.

Neustadter—Amer. jour. obst. 1915, 12:520.

Oden—Jour. A. M. A. 1915, 44:816.

1916

Green—Bost. med. & surg. jour. 1916, 174:947.

Lippman—N. Y. med. jour. 1916, 103:263.

1917

Baumm—Arch. f. Gynaek. 1917, 107:353.

Groszman—N. Y. med. jour. 105:827. 1917.

Kearney—Amer. jour. obst. 1917, 76:904.

Sharpe—Paper read before Clinical Soc. of N. Y. Polyclinic hosp. on Oct. 1, 1917.

Stein—Jour. A. M. A. 1917, 59:334.

1918

Brady—Jour. A. M. A. 1918, 71:347-49.

Brindeau—Arch. men. d'obst. et de gynec. 1918, 10:103.

Hedren—Author's abst. in German. Foerh. svens. laek-Saellsk. Sammank. 1918, 44:43.

Rechtschaft—Dissertation, 1918. Abst. in Monatschr. fuer. Gebrutsh. u. Gynaek. 1918, 48:283.

Vignes—Prag. naed. 1918. 3s. 33:321.

1919

Balard—Gaz. hebd. d. sc. med. de Bordeaux, 1919, 10: 74-78.

Lowenburg—Jour. A. M. A. 1919, 72:1615.

Morse—Amer. jour. dis. child. 1919, 18:73.

13:654.

Vischer—Cor. Bl. f. schweiz. Aerzte, 49:230. 1919. Abst. Jour. A. M. A. 72:1194.

Warwick—Amer. jour. med. sci. 1919, 158:95.

1920

Bailey—Amer. jour. obst. & gyn. 1:52. 1920.

Beneke & Zausch—Zentralbl. f. Gynaek. 1920, 44:34.

Engelken—Nederl. Tijdschr. v. Geneesk. 1920, 2:1538.

Foote—Amer. jour. dis. child. 1920, 20:18.

Rodda—Amer. jour. dis. child. 1920, 19:268.

Rodda—Jour. A. M. A. 1920, 75:452.

Sachs—Therap. d. Gegenw. 1920, 61:16.

Sidbury—Arch. ped. 1920, 37:545-53.

Strachauer—Minn. med. 3:577. 1920.

1921

Hannes—Zentralbl. fuer Gynaek. 1921, 45:1037.

Schafer—Ztschr. f. Geburtsh. u. Gynaek. 84:829. 1921.

Schwartz—Ztschr. f. Kinderh. 29:102. 1921. Abst. Jour. A. M. A. 77:163.

Vaglio—Pediatria, 29:12. 1921, Abst. Jour. A. M. A. 76:688.

Warwick—Amer. jour. dis. child. 1921, 21:488.

1922

Angelis—Pediatria, 30:1054-56. 1922.

Ballance & Ballance—Lancet, 2:1109-12. 1922.

Barrett—Northwest med. 21:243-47. 1922.

Deluca—Semana med. 2:929-32. 1922.

East—Brit. jour. child dis. 19:189-93. 1922.

Ehrenfest—Amer. jour. obst. & gyn. 4:61-66. 1922.

Henkel—Zentralbl. fuer. Gynaek. 46:129-30. 1922. Abst. Jour. A. M. A. 78:1770.

Jorgensen—Ugesk. f. Laeger, 84:869-78. 1922.

Losee—Bull. Lying-in Hosp. N. Y. 12:109-14. 1922.

Munro & Eustis—Amer. jour. dis. child. 24:273-96. 1922.

Rosamond—South. med. jour. 15:618-19. 1922.

Schwartz—Muench. med. Wchnschr. 69:1431. 1922.

Schwartz—Muench. med. Wchnschr. 69:1110-12. 1922. Abst. Jour. A. M. A. 79:1559.

Stefano—Pediatria, 30:12-16. 1922. Abst. Jour. A. M. A. 78:765.

Towne & Fabre—Cal. state jour. med. 20:17-21. 1922.

Wohlwill—Muench. med. Wchnschr. 69:1256, 1922.

1923

Conkey—Complications of labor, a cause of intracranial hemorrhage, Arch. ped. 40:239-45. 1923.

Cameron—Intracranial birth injuries. Lancet, 2:1292-95. 1923.

Cameron & Osman—Late results of meningeal haemorrhage of newly born. Brit. med. jour. 1:363-66. 1923.

Capon—Intracranial traumata in new-born. Jour. obst. & gyn. Brit. Emp. 29:572-90. 1922.

Dietrich—Birth injuries of brain. Muench. med. Wchnschr. 70:400-01. 1923.

Ehrenfest—Causation of intracranial hemorrhages in newborn. Amer. jour. dis. child. 26:503-14. 1923.

Fink—Intracranial hemorrhages from trauma of mother. Monatschr. f. Geb. & Gyn. 59:264-67. 1922.

Fischer—Birth injuries of the brain. Muench. med. Wchnschr. 70:272. 1923.

Huenekens, E. J.—Care of Newborn in First Weeks of Life, J. A. M. A., 1923, 81:624. 1924.

Schele—Late meningeal bleeding from birth injury. Monatschr. f. Kinderh. 26:43-48. 1923.

Sharpe—Intracranial hemorrhage in new-born. Jour. A. M. A. 81:620-24. 1923.

Siegmund—Birth injuries to brain and their consequences. Muench. med. Wchnschr. 70:137-39. 1923. Abst. Jour. A M. A. 80:1493.

1924

Boyd—Intracranial hemorrhages in newborn. Va. med. mo. 51:496-99.

Brady—Intracranial hemorrhage in newborn. Med. clin. N. Amer. 7:1453-59. 1924.

Clarke—Hemorrhage of newborn. Arch. ped. 41:343-46. 1924.

Fischer—Birth injury of brain and its sequellae. Schweiz. med. Wchnschr. 54:905-12. 1924. Abst. Jour. A. M. A. 83:1625.

Foote—Diagnosis and treatment of intracranial hemorrhage in newborn. South. med. jour. 17:385-89. 1924.

Gordon—Meningeal hemorrhage in new born and their remote consequences. Amer. jour. dis. child. 27:303-11. 1924.

Jenkins—Birth injuries to newborn. Kentucky med. jour. 22:566-67, 1924.

Kelly—Intracranial hemorrhage in newborn. Wis. med. jour. 23:16-18. 1924.

Laurinsich—Case of cerebral and spinal hemorrhage in new-born infant. Pediatria, 32:414-17. 1924.

Lockyear and others—Discussion on birth injuries with special reference to intracranial injuries with hemorrhage and to nerve injuries. Proc. Royal Soc. Med. (Sect. Dis. Child. Neurol. Obst. & Gynec. & Orthop.) 17:1-22. 1924.

MacHaffie—Cerebral hemorhage in new-born. Canad. med. assn. jour. 14:1173-79. 1924.

O'Donnell—Injuries and accidents in newly born. International clinics. 1:48-53. 1924.

Park—Intracranial hemorrhage in newly born, report of a case with recovery. Texas state jour. of med. 20:192-94. 1924.

Ross—Hydrocephalus complicating intracranial hemorrhage in a new-born infant. Canad. med. assn. jour. 14: 519-20. 1924.

Saenger—Intracranial hemorrhage in new-born. Monatschr. f. Geb. & Gyn. 65:257-74. 1924. Abst. Jour. A. M. A. 82:1485.

Schwartz—Birth injuries of brain and pathology of early infancy. Deutsche. med. Wchnschr. 50:1375-77. 1924. Abst. Jour. A. M. A. 83:1627.

Sharpe—Brain injuries and especially intracranial hemorrhage and cerebral edema in new-born. Ill. med. jour. 46:264-68. 1924.

Sharpe & Maclaire—Further observations of intracranial hemorrhage in new-born; significance of yellow spinal fluid and jaundice in these cases. Amer. jour. obst. & gyn. 8:172-86. 1924.

Sharpe & Maclair—Intracranial hemorrhage in new-born. Surg. Obst. Gyn. 38:200-06. 1924.

Stern & Schwartz—Clinical aspects of birth injuries. Klin. wchnschr. 3:931-34. 1924. Abst. Jour. A. M. A. 82:2149.

1925

Allison—Intracranial hemorrhage of newborn. Texas state jour. med. 21:8-12. 1925.

Amesse—Intracranial hemorrhage of newborn, with case reports. Colo. med. 22:61-68. 1925.

Barbour—Intracranial hemorrhage of newborn. W. Va. med. jour. 21:617-22. 1925.

Brady—Cisterna puncture in intracranial hemorrhage in newborn. Jour. Mo. med. assn. 22:359-61. 1925.

Brandt—Intracranial hemorrhage in newborn from obstetrician's viewpoint. Med. jour. & rec. 121:521-24. 1925.

Bruce—Intracranial hemorrhage of newborn. International clinics, 2:201-08. 1925.

Comby—Lumbar puncture in cerebral hemorrhage of newborn. Arch. de med. d. enf. 28:638-42. 1925. Abst. jour. A. M. A. 85:1842.

DuBose—Intracranial hemorrhage in newborn. Va. med. mo. 52:223-26. 1925.

Edmond—Clinical pseudobulbar paralysis due to intracranial hemorrhage of newborn. Va. med. mo. 52:300-02. 1925.

Foote—Intracranial hemorrhage of new-born; presentation of 4 patients, 2 showing good results of early treatment and 2 showing results of lack of such treatment. International clinics, 4:130-37. 1925.

Gordon—Intracranial hemorrhage in new-born. Jour. Mich. med. soc. 24:192-94. 1925.

Gordon—Meningeal hemorrhages in new-born and their consequences. Jour. Med. Soc. N. J. 22:294-300. 1925.

Groves—Intracranial hemorrhage in new-born treated with haemostatic serum. Med. Jour. Australia, 2:653-54. 1924.

Grulee—Treatment of intracranial hemorrhage in newborn. Jour. A. M. A. 85:336-38. 1925.

McSwiney—Case of intracranial hemorrhage in newly born child after normal and easy labor. Jour. Obst. & Gyn. Brit. Emp. 32:557. 1925.

Munro—3 cases of laryngeal spasm associated with intracranial hemorrhage in new-born. Ann. otol., rhinol. & laryng. 34:677-81. 1925.

Pounders—Intracranial hemorrhage in new-born. Jour. Okla. med. assn. 18:126-28. 1925.

Pritchett—Intracranial hemorrhage of new-born. Ky. med. jour. 23:7-11. 1925.

Roberts—Spinal fluid in new-born with especial reference to intracranial hemorrhage. Jour. A. M. A. 85:500-03. 1925.

Sharpe—Recent advances in neurosurgery, especially in diagnosis and treatment in brain injuries. R. I. med. jour. 8:51-61. 1925.

Sharpe & Maclaire—Further observations of intracranial hemorrhages in newborn. Surg. Gyn. Obst. 41:583-88. 1925.

Sharpe & Maclaire—Intracranial hemorrhages in 400 consecutive new-born babies. Amer. jour. obst. & gyn. 9:452-62. 1925.

Strickler—Surgery in birth injuries to nervous system. Ky. med. jour. 23:346-48. 1925.

Ullrich—Ocurrence and prognosis of cerebrospinal hemorrhage of new-bornn due to delivery. Ztschr. f. Kinderh. 39:243-45. 1925.

Ylppoe—Origin of hemorrhage in prematures and the new-born. Ztschr. f. Kinderh. 38:32-45. 1925.

1926

Frazier—Intracranial hemorrhage in infants. Kentucky med. jour. 24:107-08. 1926.

Maclaire—Signs of acute proved cases of intracranial hemorrhage in new-born. Med. jour. and rec. 123:215-19. 1926.

Ruh & Garvin—Hemorrhage of new-born with special reference to brain hemorhage. Ohio state med. jour. 22: 215-18. 1926.

Schwartz & Fink—Morphology and genesis of hemorrhage in brain and skull of new-born due to labor. Ztschr. f. Kinderh. 40:427-74. 1925.

Sharpe—Intracranial hemorrhage in new-born. Amer. jour. surg. 40:17-22. 1926.

Sharpe & Maclaire—Intracranial hemorhage in new-born. Jour. A. M. A. 86:332-38. 1926.

MISCELLANEOUS.

Holland—Tr. Edinburgh Obst. Soc. 40.

Capon, N. B.—J. Obstr. and Gynec. Brit. Emp. Col., 29: No. 4.

*Only a limited number of these references were used—but the entire list is reproduced for the benefit of those who might desire to write further on this subject.

INTRACRANIAL HEMORRHAGES IN THE NEWLYBORN.*

ETIOLOGY, PATHOLOGY AND SYMPTOMATOLOGY.

JOHN SIGNORELLI, M. D.,

NEW ORLEANS.

Not only the clinician whose work brings him in contact with large numbers of newborn infants, but the statistician whose duty includes the review of certificates of death, as well, must of necessity have observed the rather large number of infant death certificates bearing the diagnosis as cause of death "Birth injury," "Asphyxia," "Paralysis" or "Convulsions." That at least some of these cases were due to causes

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more specific and direct became the thought of some clinicians, who hoped that, this being so, effectual treatment might be evolved that would not only save many lives, but help eliminate those cases which, surviving, appeared later in the various clinics as cases of non-curable nervous or muscular deformities that account for a goodly number of helpless individuals. Personal impressions of the writer in this respect were substantiated by a study of the autopsy records of the Charity Hospital which showed a sufficient number of intracranial hemorrhages where the certified cause of death had been one of the above named, to invite serious reflection. A review of the medical literature on the subject, as quotations therefrom will subsequently show, strengthens this view.

In the brief time allotted this paper it is impossible to consider fully the etiology and pathology of the various types of lesions in all hemorrhagic conditions of the newlyborn. Yet a clear understanding of the etiology and pathology of intracranial hemorrhages in the newlyborn can not be had without at least some reference to those hemorrhagic affections sometimes discussed under the name "Hemorrhagic Diathesis," because besides furnishing the etiology of the greater number of these cases, this condition still remains at best little understood, and therefore invites more painstaking investigation. In a general way it will suffice to state that these affections represent a number of pathologic conditions having in common a fundamental tendency to blood extravasations occurring more or less independently and therefore differ from extravasations appearing as complications or sequels to other diseases as congenital lues, septic processes, leukemia. It is quite obvious that however earnestly one may try all cases cannot be clearly classified, for very often the etiology in a given case represents more than one factor, *i. e.*, in a case wherein exists an hereditary tendency to hemorrhage (Hemophilia) trauma so slight as to otherwise cause no appreciable bleeding would here act as the exciting cause of a hemorrhage of considerable extent. Therefore it results that most of these cases represent a complex rather than a single etiological and pathological factor.

Study of the etiology is made more comprehensive if classification is made in groups as follows:

1. Those based upon a hemorrhagic diathesis (Hemophilia).

2. Those based upon constitutional disturbances, including:

   (a) Sepsis.

   (b) Congenital lues.

   (c) Leukemia.

   (d) Prematurity.

3. Those based upon birth injuries, including:

   (a) Instrumental.

   (b) Non-instrumental.

   (c) Manipulations for resuscitation.

1. The hemophilic group represents that percentage of cases of spontaneous hemorrhages the underlying cause of which, in the light of our present knowledge, is not satisfactorily explained, as proven by the many hypotheses advanced, none of which are supported by facts. Faulty mixture of the blood elements resulting in impaired coagulation is advanced by Grandidier and Lossen; Virchow and Aberhalden believe it due to anatomical anomalies, especially thinness of the blood vessel walls; while W. Koch considers it infectious in origin. Pathologic study has given more appreciable results. Fatty degeneration of the vascular intima with enlargement of the endothelia and swelling of the nuclei and been reported by Hooper, Linton and others. The blood shows marked reduction of hemoglobin and a picture of severe anemia with poikilocytosis and nucleated red cells; the neutrophiles are reduced both relatively and absolutely, though the quan-

tity of fibrin and other physical properties of the blood are normal with the exception of the platelets which are always reduced in number. The coagulation time is prolonged very markedly, often as high as ninety minutes, and the bleeding time to several hours. In this connection the work of Rodda must not be lost sight of. He has shown that the coagulation time in normal newlyborns is gradually prolonged immediately after birth reaching its highest by the fourth day and ordinarily returns to normal by the fifth or sixth day. The bleeding time is prolonged hand in hand with the coagulation time and returns to normal about the same time as the latter. This coincides with the fact that spontaneous hemorrhages ordinarily appear from the second to the fourth day after birth, and this is of considerable value in arriving at a diagnosis. Two types of "bleeders" as these victiims are often termed, are recognized, though a sharp line of demarcation is impossible. The first, in which hemorrhage occurs without apparent cause, are termed "transitory" or "spontaneous" bleeders; and the second are those cases where the hemorrhage is excited by trauma. These represent the larger number of cases in the newlyborns, and affect the males more often than the females, the proportion being variously given as from three and a half to thirteen times more males than females.

2. Cases are sometimes seen which exhibit no apparent cause and would be classified as spontaneous hemorrhages based on a hemophilic origin but for the fact that the coagulation and bleeding time are within the normal. Most of these are in reality secondary to septic or syphilitic infections, or to leukemia and are differentiated by the existence of other clinical signs relating to the underlying cause. In these cases labor may have been easy or spontaneous; the child small or even premature.

3. In the group represented by birth injuries we find the more important etiological factors than all the above named, all of which may well be considered as predisposing to intracranial hemorrhages resulting from birth injuries. We say more important because they are within the possibility of control by the obstetricians. Because injuries to the intracranial tissues can and do occur even in labors that are easy, relatively short and in every way normal, co-existence of any of these predisposing factors will invariably produce hemorrhage sufficient in extent to cause symptoms.

But for the majority of these cases the responsible cause is to be found in definite anomalies of labor, as breech cases, extraction of the after-coming head in cases of version, difficult forceps cases, and especially in conditions of mechanical dystocia.

Asphyxiation prolongs both the coagulation and bleeding time, and like prematurity renders the infant more susceptible to trauma while attempts at resuscitation are made. Too often such manipulations are so violent as to produce more damage than benefit to the infant.

PATHOLOGY.

In the study of the pathology in intracranial hemorrhages we find that as early as 1832 in his pathologic-Anatomic Atlas, Cruveilhier showed appreciation of the fact that of all the cephalic injuries due to trauma of birth the most important are those of the skull contents, brain and meninges. He also showed that such injuries in newlyborn infants exist without external evidence of trauma, as proven at autopsy findings. Such cases were discussed in a most thorough manner from the anatomical standpoint by Weber and also by Virchow in 1852.

It is of historic note that interest in the clinical aspect of intracranial hemorrhages of the newlyborn was first manifested by the neurologists. It was Little of London who stated in 1843 that spastic paralysis in young children is due to a lack of de-

velopment of cerebral tissues and also to meningitis, and called attention to the fact that this type of paralysis seems to follow difficult and prolonged labor with or without instrumentation. He expressed his opinion that palsy was due to intracranial hemorrhages, and later, in 1862, he asserted that intracranial hemorrhage caused about 75% of spastic paralysis cases.

Next to the neurologist, the pediatrician became concerned with this problem as shown by the appearance in 1902 of a monograph by Finkelstein in which he showed the outstanding importance of birth trauma in the development of infants.

While the obstetrician was slow to enter this field, his researches have finally led to a clearer understanding of the etiology and pathology of the lesions met in intracranial birth injuries and therefore of intracranial hemorrhages of the newlyborn. In 1907 Seitz published his classic paper on the symptomatology of brain hemorrhages in the newlyborn, and in 1909 Beneke supplemented our knowledge with his publication on lacerations of the tentorium, and it is to the latter that we owe our more definite knowledge of the actual frequency of these injuries, and the exact pathology associated therewith, for it was he who clearly described the new method of opening the infant skull at autopsy.

For the purpose of brevity the pathologic pictures met in intracranial hemorrhages of the newlyborn may be classified as follows:

1. Internal cephalhematoma.

2. Sub-arachnoidal hemorrhages, which include:

   (a) Supra-tentorial.

   (b) Infra-tentorial.

   (c) Mixed lesions.

This type represents the most frequent cases seen.

3. Dural hematoma or sub-dural hemorrhages.

4. Brain hemorrhages, which are subclassified as follows:

   (a) Ventricular.

   (b) Interstitial, either diffuse or circumscribed.

1. The pathology in the cases of internal cephalhematoma is explained by the fact that the blood vessels of the cranial periosteum pass directly through the skull bones into the firmly attached dura mater, and therefore even in the absence of definite bone lesions, formation of an epidural hematoma may follow external trauma, and it is questionable how many external cephalhematomas are associated with an internal one, as mentioned by Sidbury. This particular lesion rarely causes death, and in many instances produces few clinical symptoms.

2. The sub-arachnoidal group of hemorrhages represent by far the largest number of cases. The bleeding is located more often over the convex surface of the brain hemisphere near the mid-line. Occasionally blood is found over both hemispheres, but more extensive on one side, and in most cases bleeding is limited to one side only. According with the distribution of the clot spasmodic contractions are more pronounced in, or limited to the lower extremities. Beneke and Zausch reported a case of a premature infant born after an easy and spontaneous labor which died after thirty-six hours. Autopsy showed a large sub-pial hematoma in the posterior portion of the brain, covering both sides of the cerebellum. Seitz quotes Kundrat as describing in 1890 intracranial hemorrhages of this type in autopsies of young infants with small heads and born after short normal labors.

3. Dural hematoma or sub-dural hemorrhages though more rare than the preceding are of greater clinical significance and represent the most important group from a practical point of view. Kowitz studied six thousand autopsies of newlyborn or

very young infants and established proof of the prevalence of this type of intracranial hemorrhage. Except in the exceptional cases arising from the median meningeal artery in cases of guttered skull fractures after forcible delivery, the bleeding is of venous origin. His findings seemed to confirm the older view that sub-dural hemorrhages in the newlyborn lie most often over the convex surface of the hemispheres beneath the parietal bones. Since the first studies of Beneke authorities seem agreed that these hemorrhages are most often situated just above or just below the tentorium, the upper blade of which is the most frequent to receive damage in tears along its free edge. These cases were classified by Pott into three types, namely, first an extensive tear through the free edge usually lying about the middle, being often bilateral and extending through both blades of the tentorium. The torn edges are ragged, fringed, and covered with a thick coagula of blood which has escaped from the injured vessels (veins) running along the free margin. The blood escapes upward above the tentorium and forward into the temporal fossa, or it rises laterally over the occipital lobe. Less frequently the blood passes downward covering the cerebellum and medulla, with portions of it finally reaching the spinal canal. The amount of blood extravasated varies from forty to ninety cubic centimeters in the larger cases. This distribution of blood is of vast clinical importance because it shows that absence of blood in the spinal fluid when doing a spinal puncture for diagnostic purposes does not exclude any but this more rare and profuse type of hemorrhage.

In the second milder type first described by Beneke, the laceration involves the upper blade and the hemorrhage is less severe. In the third and least serious type the hemorrhage is limited to a small clot between the blades of the tentorium. This type produces few, if any, clinical symptoms, and may be overlooked in a careful autopsy.

Infratentorial hemorrhages, especially it the large veins emptying into the transverse sinus are torn, result in blood being extravasated more or less completely over the cerebellum and portions of the medulla. Some of this blood is found in the upper portion of the spinal canal. This type of lesion according to Henschen is much less frequent than the supratentorial type.

The mixed forms of this lesion represent escape of blood above and below the tentorium following tears, but are quite rare.

4. Hemorrhages into the brain proper have been thought to be comparatively rare, but more recent autopsy studies at Charity Hospital show them to be quite frequent. The bleeding may take place directly into the ventricle, in which case it is rather extensive. The flow is, in these cases, through all the ventricles toward the medulla, and into the spinal canal. Usually the convex surface of the brain is normal in appearance and free from blood over both hemispheres. Or the hemorrhage may be into the brain substance itself, appearing in multiple diffuse areas or as a larger circumscribed clot.

SYMPTOMATOLOGY.

The clinical picture resulting from intracranial hypertension in the newlyborn differs from that in the adult because of the great anatomic differences in the respective skulls. In the adult this increase results from increase in the skull contents, while in the newlyborn we must consider the pressure being exerted entirely from without, due to molding during labor and resulting in actual reduction of the skull volume. While nature provides sources of compensation, as by the escape of cerebrospinal fluid into the spinal canal and by increased absorption of fluid by the lymphatic channels, as well, perhaps, as by a reduction of blood volume within the cranium, this arrangement can only be adequate in purely normal cases. In the abnormal cases represented by difficult or prolonged labor, or by undue pressure due

to instrumentation or manipulation, injury to the intracranial tissues, especially the tentorium, follows with resulting hemorrhage.

The location and extent of this injury as well as the resulting extravasation of blood determine the type and degree of clinical phenomena exhibited. The classic symptom of intracranial hypertension, namely, bulging of the anterior fontanelle indicates a large ventricular or hemispheric hemorrhage, or a marked edema which often develops as a direct sequel of a large brain hemorrhage. No bulging exists if the hemorrhage is small or if it is located sub-tentorially, except in rare cases when it may develop late as a result of continued oozing. Prolongation of the coagulation and bleeding time are constant symptoms in cases based upon a hemophilic diathesis, but one must not forget that as Rodda has shown these findings are present phenomena also in normal infants from birth until the fifth or sixth day. Asphyxia is usually present, the infant presenting a picture of distress, emitting a feeble characteristic cry, and fails to nurse because of lack of the normal sucking reflex which in the normal infant is easily established by rubbing the lips with the finger. The skin shows cyanosis in cases of infra-tentorial hemorrhages, and a marked pallor in hemispheric hemorrhages, but often at the onset one notices only a peculiar mottling of the skin as if the body is chilled.

The respiration is affected in all cases, though early in the infra-tentorial and later in the hemispheric types. Breathing is slow, deep, irregular and always interrupted by the rather incessant cry mentioned above. The slow stertorous breathing seen in cerebral hemorrhages in the adult is not present in the newlyborn. A hemispheric hemorrhage with slight hypertension not sufficient to produce convulsions usually causes no cyanosis, while this is the common occurrence in infra-tentorial hemorrhage.

Convulsions constitute the most formidable symptom. They represent hemorrhage over the cortex, and are usually clonic and tonic, involving chiefly the flexors of the extremities. In severe cases the muscles of respiration are also involved. In cases of infra-tentorial hemorrhages there may be rolling of the eye balls, twitching of the face muscles, rigidity of the neck and opisthotonos. The production of trismus is very rare.

Paralysis usually follows the convulsive stage as further extravasation of blood increases the intracranial pressure beyond the point of excitation and irritation causing the spasticity to yield to paralysis. This usually involves the muscles of the extremities.

Occasionaly a clinical picture of confusing manifestations exhibiting a spastic condition in one group of muscles with simultaneous parlysis of others is seen. This has been explained to be due to a combination of irritative cortex hematomas with hemorrhage within the brain substance causing paralysis of certain centers.

BIBLIOGRAPHY.

Report on the Causation of Fetal Deaths, No. 7, 1922. British Ministry of Health.

Birth Injuries of the Child, Hugo Ehrenfest.

Intracranial Hemorrhages in the Newlyborn, Wm. Sharpe, J. A. M. A., Vol. 81, No. 8.

Pfaundler and Schlossmann, "The Diseases of Children," Vol. 2.

Abt's Pediatrics, Vol. 2.

DISCUSSION.

Dr. P. T. Talbot (New Orleans): I want to congratulate both of the essayists on bringing this important subject to our attention. I was attracted to this important and unfortunate condition by having two cases in my obstetrical practice, and it caused me to review the literature of the cases reported of those which recovered and of the autopsies performed. I was amazed that this important condition occurs more frequently than we are led to believe. With the improved methods of diagnosis at our command today and in consultation with pediatricians we are able to recognize more of these cases than we formerly did. If this unfortunate condition exists sometimes without producing symptoms and is thought to be

the cause of disabilities in later life described by Little, producing method derangements in later life, isn't it encumbent upon those who are doing a large obstetrical practice to be more observant of their technic during labor in order that these disabilities of later life might be prevented? I think that the subject is one that is extremely interesting to everyone and I want to assure you that the clinical entity presented in this class of unfortunates is one that will tax the ability and the endurance of anyone who is unfortunate enough to have to come in contact with it.

I appreciated the papers very much and I think they will give a sounding to our general practitioners to be more careful in the handling of these cases and make the diagnosis and prevent them if possible.

Dr. Charles A. Bahn (New Orleans): There is a marked analogy between the vascular condition which exists in the back of the eye and in the cerebral ventricles. In both places we have vessels which have on one side a body fluid under a lower degree of pressure than is in the vessels. It has been definitely proven that in normal labors and in normal children, twenty-five percent have retinal hemorrhage. These hemorrhages are usually absorbed in about two or three weeks and seldom cause permanent visual impairment. They have been attributed to a diapedesis from the veins either in the course of a very slight asphyxiation or because of the interval which exists between the cessation of the maternal circulation and the full action of the child's heart.

Will Dr. Bloom or Dr. Signorelli tell us whether or not the percentage of ventricular hemorrhages at birth, is probably much greater than is commonly thought? The analogy between the ventricles and the eyes would apparently explain the ventricular hemorrhage at birth in 25% of the normal deliveries. Is it not possible that ventricular hemorrhages at birth undergo the same evolution as those in the eye and only occasionally leave permanent degenerative changes behind? Might the existence and severity of retinal hemorrhages in this connection be suggestive of intercranial hemorrhages not only in amount but in severity.

Dr. Lucien A. LeDoux (New Orleans): This timely subject has been rather fully covered by the two essayists in the time allotted and I simply want to emphasize the feeliing which ran through both papers, namely, that many of these injuries could be avoided by proper supervision of many normal cases. We know that the injuries usually resulting from edema or hemorrhage following precipitate labor result from extreme overlapping and pressure. The same may be said in the normal cases where we have premature ossification of the cranial bones and probably early posterior fontanel closure.

Undoubtedly most of the cases of intracranial hemorrhage are overlooked. Many of them are slight. The symptoms last but a short time, little importance is attached to them and the baby recovers for the time being, often rapidly, and only in the later years through the history can one connect the former injury with the present illness.

In regard to the injuries resulting from operative delivery, I am of the opinion that much can be done here in exercising the proper judgment in choosing the proper type of obstetrical operation; also, in reaching a conclusion regarding which method of delivery will be least injurious to the baby.

The question of spinal puncture, is being advocated now rather freely—in our own service we resort to it frequently, we have found spinal decompression very valuable. We have repeatedly done as many as three or four punctures over a period of twelve to eighteen or twenty hours, at first possibly getting clear fluid. At times we have had fluid under pressure; at other times we have had fluid without pressure. Again, we have often had bloody fluid after the first puncture and with subsequent punctures clear.

There is some difference of opinion regarding the presence of bloody spinal fluid when the puncture is made in early infancy, some believing that for some unexplained reason most of these spinal fluids will be bloody. We believe though, that the contaminated fluid is not greater in spinal punctures in infants than in adults.

Regarding craniotomy, I believe it is agreed by most authorities that the mortality is so high in practically all cases that it should not be attempted.

Dr. Guy A. Caldwell (Shreveport): It is perhaps out of place for an orthopedic man to discuss a paper in the medical section. Nevertheless, the importance of this particular paper cannot be over-estimated. Perhaps, unless you are in a hospital for crippled children or see crippled children constantly, you cannot appreciate the great number of these cases that exist, and you cannot appreciate the pathetic side of not being able to do anything for the case that doesn't even have the mentality to co-operate.

It is a vastly important question and it must be approached, unquestionably, from the side of prevention and then, early treatment. I think that the condition which exists finally justifies the most heroic means in the early stages. It is

true that they can be helped when they have enough mentality to co-operate. A great deal can be done at that stage, but it is discouraging, and those people are handicapped and seriously handicapped the rest of their lives, and anything that can be done in the early stages is most important. I hope that Dr. Bloom will give us some of the results of treatment in the early stages because we need it. (Applause.)

Dr. N. F. Thiberge (New Orleans). I want to ask Dr. Bloom a question. He mentions the difficulty about making a spinal puncture successfully. I have had a few cases and I have used the same method as in adults. I would like to know, Dr. Bloom, whether there is a y special difference in the method of puncture used with children than that used with adults.

Dr. J. S. McBride (Ansley, La.): Do you brethren give maximum dose of pituitrin? Are you doing that now? I did, but am convinced that it is dangerous. I have not killed a child with it, but I am sure the child is harder to resuscitate than if delivered by instruments in the hands of an intelligent physician. I think it is very dangerous especially in primapara where every condition is not suited to take the maximum dose.

Dr. R. McG. Carruth (New Roads): I have not done a large obstetrical practice but having practiced medicine in the country—this is my forty-sixth year—I must have done a considerable amount of it. I have used in my practice, since the advent of pituitrin, one single dose. I always regarded it as dangerous to hurry up these cases and I have always advocated giving the patient plenty of time. I think I have lost very few, if any, cases, by waiting, and I think I have known a good many to be severely injured, by precipitate labors.

I recall one case where a physician gave a large dose of pituitrin simply because he had another call, two cases on hand at one time, and he couldn't wait. The child was saved but the mother was fearfully lacerated and is an invalid today.

I have given, as I said before, one dose of pituitrin, and I hope I will never feel the necessity of giving another because I think it is nearly always running some risk. There no doubt are times, however, when it should be given to save life. If more care, however, were given, as an unvarying routine measure, to the proper preparation of the expectant mother for the ordeal of delivery, there would be fewer abnormal deliveries, and consequently less frequent necessity for such a powerful and precipitate oxytocic.

Dr. Signorelli (in closing): I want to assure the gentlemen that I appreciate the discussion, and also repeat that too much importance cannot be attached to the subject that was taken up in these two papers.

Dr. Talbot in his remarks mentioned with a great deal of feeling the embarassment that one feels when faced with one of these cases. I had the pleasure of seeing one of Dr. Talbot's cases with him, and that little case, although fortunately it turned out all right and is doing very well, lingered on for a period of over two weeks without giving us any encouragement as to final recovery.

An important feature about these cases is brought out by comparison of Dr. Talbot's case with a case that existed at the same time. There was a difference of twenty-four hours in the ages of these two babies and the symptoms ran along almost completely parallel. At the end of about two weeks Dr. Talbot's case continued to respond to medical treatment, whereas the other case went on through the variations of clinical pictures as described in my paper of convulsion and final paralysis. When that point was reached and the respiration was so terribly embarassed that we were sure the child was going to die unless some surgical intervention took place, I advised the obstetrician that a craniotomy should be done. Clinical evidence indicated the presence of a hemispherical clot over the right side and fortunately the guess was good, the craniotomy was performed and a large clot removed, after which the child made not only an uneventful recovery but overtook Dr. Talbot's case and returned to absolute normalcy in a shorter time.

While it is true that Cushing advocates putting off craniotomies and being careful not to do craniotomy unless you are certain as to localizing the clot, in cases where you have done everything else medically and you are getting no results, I believe craniotomy is absolutely indicated rather than to let the baby be at its own mercy with nothing to face it except certain death.

In answer to Dr. Bahn's question concerning the explanation of the postretinal hemorrhages, I can only believe that inasmuch as there is a general increase of intracranial pressure, and inasmuch as the blood vessels of the retina have not as substantial a background as the other blood vessels of the brain have, possibly hemorrhage will take place at this particular site and relieve the intracranial pressure to a certain extent, thereby preventing further oozing or further damage unless the case is one of those accountable as hemophalia.

Dr. LeDoux mentioned the fact that we find bloody-tinged spinal fluid in some cases. I believe that in so far as spinal punctures are concerned, more stress and more importance should be attached to the degree of pressure exhibited by

the spinal puncture than to whether or not we have a bloody tinge or not, because first of all you may have a contamination, and in the second place you may have a supra-tentorial hemorrhage of larger extent which is causing pressure to increase the pressure in the spinal canal and yet no blood has found its way to the spinal canal, unless you do that spinal puncture late. I mean by late, after two or three days, certainly after seventy-two hours.

I appreciated Dr. Caldwell's remarks concerning the treatment and I believe the most important phase of these papers is that it will enable us to be more careful in the future and to help, not those who are already crippled, but those who are going to come into the world in the future.

In conclusion, I want to mention something about symptoms of cyanosis. Marked cyanosis is found only in cases of hemorrhage of the infratentorial type. In cases of hemorrhage within the brain substance itself the most characteristic feature, in so far as cyanosis is concerned, is the appearance of a particular mottling, giving the child the appearance of the body's having been chilled. Not that you have a constant cyanosis, nor do you have that marked pallor that Dr. Bloom so well brought out, but a very peculiar mottling in spite of the fact that you may have your child in an incubator, well protected. The appearance of the body is as though exposed to a chill.

Dr. Bloom (in closing): I appreciate the various remarks made regarding the important subject and I will not attempt to answer the questions that Dr. Signorelli has so ably handled, but in response to Dr. Caldwell's question, to show you the effect of an early interpretation of intracranial hemorrhages in the newly born, I wish to present this as one of the cases mentioned where an early diagnosis was made on the second day (showed a picture). Some of the father's blood was given subcutaneously twice. This child is one year old and normal in every respect.

There is another child (picture). We had to do four spinal punctures. We gave three subcutaneous injections of whole blood from the father. The child is two years of age and perfectly normal in every respect.

This is another child (picture) that was not treated at birth and is today an epileptic. He is normal in most respects, with the exception of spasticity, and has frequent convulsions which cannot be counteracted—but can only be relieved.

And this is a contract (picture). A hopeless case such as Dr. Caldwell referred to where perhaps orthopedic intervention might materially assist the motor functions but will not in any way help the sensory functions.

In response to Dr. Thiberge's inquiry, the method of making spinal puncture in the infant is no different, perhaps, than in the adult, except that the vertebrae are anatomically much closer together. In infants the needle is placed at right angles to the axis of the vertebrae, and in the older child we try to go in from the side at an acute angle.

In response to Dr. Carruth's few words regarding the difficulty he has seen associated with pituitrin although his personal experience has been with only one case, we must take into consideration that the head in its passage through the uterine canal must become smaller in cranial volume. If suddenly the fluid is expressed through the ventricles and through the formalinal from the lateral ventricles, and the lymphatics proportionately are emptied and the blood expressed is from the brain into the spinal canal we can well visualize what can result.

This chart gives you the extreme type of the intracranial hemorrhages of the newly born (displayed chart). On the fifth day the child had a temperature of 106 3/5. This child's most pronounced symptoms was vomiting. As a matter of fact, for seven days we kept this child alive on subcutaneous injections of five per cent dextrose. He had frequent convulsions, vomiting every bit of food given. The child left the hospital on the twenty-second day, having an increase in weight, and through the administration of whole blood given three times and two spinal punctures is today apparently normal.

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THE JOURNAL *does not hold itself responsible for statements made by any contributor.*

Manuscripts should be addressed to the Editor, 1326 Whitney-Central Bldg., New Orleans, La.

OTHERS NOTE IT, TOO.

Anent our editorial in the November issue, entitled "Legal Restrictions," in which we described the tendency of the times to practice medicine more by laws, department rulings, record keeping, etc., rather than by scientific knowledge and common sense, we note, with pleasure, the fact that the Journal A. M. A. does not hesitate to show the ridiculousness of the situation, whenever the occasion warrants. In its Vol. 87, No. 19, under the caption "New Ruling on Liquor Prescriptions," it calls attention, editorially, to the way in which the Prohibition Commissioner or the Commissioner of Internal Revenue suddenly reverses his rulings as to the manner of filling out liquor prescriptions; in the instance specifically referred to, doctors are now instructed to leave name of druggist blank, whereas, formerly, to do so would have invalidated the prescription—this previous ruling in spite of protests, at the time, of the American Medical Association.

This is but one small item, but it is our intention, from time to time, to call to the attention of the medical profession some of the unnecessary formalities and "red-tapism" from which we are suffering.

DR. MORRIS FISHBEIN'S VISIT.

The medical profession in particular, and the citizens of Louisiana in general, will be hosts this month to a most famous and eminent medical officer and journalist in the person of Dr. Morris Fishbein, Editor of the Journal of the American Medical Association.

Dr. Fishbein's attainments and experiences in medical teaching, medical writings and other prominent activities, preeminently qualify him as one of the most famous medical authorities in our country. His appearance in our midst, as a representative of the national medical organization, should be heralded as quite an epoch in our medical progress.

The Committee and Officers of our State Society, responsible for such a treat, are to be congratulated on their wisdom and foresight in inviting such a personage to our State; by which it is attempted further to edify our medical organization and to instill in our members a closer realization of the ideals of our National Society. His appearance and addresses in our State are therefore fraught with most unusual possibilities; resulting in greater accomplishments and progress for medicine and medical organization. This will include a more thorough vision of the principles embodied in medical organization and a review of future possibilities; well exemplified by him, as it relates to the physician personally and collectively.

It has been a long, long time since the American Medical Association has honored our State with the vistation of one of its representatives for such a purpose. It is anticipated and expected that he will find in the physicians of Louisiana the ever willingness to assimilate and profit from the dispensation of his wisdom and experiences; that we may demonstrate most forcibly, that while the medical profession of our State has performed notably in the past, there is ever present a most fertile field for the sowing of seeds to mature in continued development of medical usefulness, and thus rightly assume our just responsibilities in making our profession grander and more worthy of its tradition.

CORRESPONDENCE.

Dr. H. W. E. Walther, Editor,
New Orleans Medical and Surgical Journal,
1326 Whitney Central Building,
New Orleans, La.

Dear Doctor Walther:—

While talking with our good friend, Dr. Frederick L. Hoffman, Section Preventive Medicine, on the afternoon of the 17th, I told him of the tribute paid Doctor Matas the other evening at Tulane Medical College, and suggested he write a poem for the *New Orleans Medical and Surgical Journal.*

On the back of an envelope, he penned the enclosed which I send you with the hope it will appear in the next issue of the Journal.

Cordially yours,

OSCAR DOWLING.

Nov. 19, 1926.

DEAR DOCTORS:—

You will find further over in this issue a cordial invitation to you to attend a meeting of one of the few societies which is really profitable both to men in general work and those engaged in special lines. It has no sections and every address is pointed at the weak point in the whole scheme of the practice of medicine. That is, as you have often thought, the border line where general medicine and the specialities meet.

The Tri-States Medical Association of Mississippi, Arkansas and Tennessee meets in Memphis, February 1, 2, 3, 1927. For absolute quality the program to be presented has never had a superior at any medical gathering in the South. That is a calm statement of fact—not boasting. Several have had more bulk but few have ever approached it in worth. It means an intensive, varied postgraduate course you can't afford to miss!

Yours Sincerely,

A. F. Cooper, M. D. Secretary.
Bank of Commerce Building,
Memphis, Tenn.

DR. MATAS AND THE BIGELOW MEDAL

RUDOLPH MATAS,
MASTER OF SURGERY.

Son of the Latin Southland
Son of a sunkissed soil,
Born to the purple but man of choice
To a life of arduous toil,
Known to all as a surgeon
Master of exquisite skill,
Saving the lives of the dying,
Comforting, aiding the ill.

Friend to all who are struggling,
Kind to the lowly and poor,
Generous host to those who pass
Through his always open door;
Versed in all arts and in science,
Gifted with grace and with tact,
In peace and in war in the forefront,
Never afraid to act.

Teacher of countless students,
Medicine's proudest boast,
Leader in every movement
In matters that count the most.
Beloved by all who know him,
Rich or of slender means,
The pride and the joy of the city
Of beautiful New Orleans.

May he live long and be happy
Wearing the laurel he's won,
Sorrow will fall on the city
When in time his labors are done.
But enshrined in the hearts of the people
Will be the name of the surgeon who was,
Live on forever and ever,
The deathless fame of MATAS.

FREDERICK L. HOFFMAN.

Atlanta, Ga., Nov. 18, 1926.

"Honor and reverence and the good repute
That follows faithful service as its fruit,
Be unto him, whom, living, we salute!"

To fully appreciate the meaning of the Bigelow medal, one should be firmly planted upon Plymouth Rock, preparatory to diving deep into the flowing tide of early Americanization. So far back as 1640 there were Bigelows in New England. Massachusetts and Bigelow, even in colonial and revolutionary days, had become synonyms. Whether it might be medicine of the soul or of the body, they had dispensed it freely. As we have no less an authority than Dr. Matas himself for stressing the value of a "clean" ancestry, it does not seem unbecoming to acknowledge that this long line of Puritan progenitors offered much to their offspring that would inspire lofty ideals and perpetuate noble character. There is no doubt that the Bigelow descendants lived worthily of their inheritance!

Dr. Henry Jacob Bigelow was the son of a father no less exalted than was his distinguished son. Read the essay entitled, "Jacob Bigelow," which is to be found in that most charming collection of Surgical Memoirs from the pen of another noted Boston surgeon, James Gregory Mumford. It will give the student a great deal that is profitable in the way of human example and knightly conduct. The son of such a father could not have hidden his "light under a bushel" even had he been so disposed. The flaming tongue of Pentecost had baptized him with the gift of gracious speech, and his luminous presence flashed across the cold, clear Boston firmament in meteoric splendor. According to our peerless medical historian,—Fielding Garrison,—the younger Bigelow was, during his lifetime (1808-1900), "the leading surgeon of New England." Those of us who are at all familiar with the medical history of the New England of that period should know something, at least, of the magnitude of this compliment. But, to Henry Jacob Bigelow, there came at length that inevitable "rest" which puts an end to mundane labors and which brings unto the Prophets and Saints of ancient and modern times a "peace which passeth understanding," as they answer "Adsum" to God's call unto their permanent abiding place in the repose of His promised land.

Seen no more of men, Henry Jacob Bigelow continued to dwell in the hearts of his fellows. To Boston, with its Harvard and

its Massachusetts General Hospital, such as he could never die. In memory of all that he had been and in assurance of all that he must continue to be, in 1915 his son, Dr. William Sturgis Bigelow, established, as a fitting memorial, THE BIGELOW MEDAL. This he offered as an award to that member of the medical profession making the most distinguished contribution to SURGERY.

Twice only had this signal distinction been conferred when, upon the Day of All Saints, November 1, 1926, our own Rudolph Matas became its third recipient. To us, who see only through our mortal eyes, how distressing it appears that shortly before this presentation Dr. Sturgis Bigelow had passed on!

In 1921, Dr. W. J. Mayo of Rochester, Minnesota, had been the first to be offered this noble token. Dr. Mayo needs no introduction to a New Orleans audience, for does not every schoolchild in the Crescent City know that it is he who proclaimed *our* Dr. Matas, "the most learned surgeon in America?" Dr. W. W. Keen of Philadelphia, distinguished for countless publications and brilliant surgical procedures, author of America's greatest and most popular System of Surgery, was second choice, being awarded the prize in 1922. Note, it is a chapter in this same mammoth achievement concerning which the British Medical Journal has this to say: "In volume 5 occurs a monograph of 350 pages on the Vascular System, by Rudolph Matas, which is *in itself enough* to make the book indispensable to general surgeons."

No wonder, then, that Boston, in judgment clear and crystalline as a flawless diamond, has recognized the fact that south of Mason and Dixon's line there has arisen a Light which is shedding the genial beams of hope and healing across the dark waters of hitherto dangerous and well nigh fatal surgical explorations!

In all the warmth and poetry and color of his semi-tropical environment, this great High Priest of Southern Surgery stood wrapped in his glowing personality and received the honor due.

He comes back to his own people, having added to the iridescent gems of his jeweled breastplate the diamond star of America's far East, and he brings to the city of New Orleans the same tender, humble, loyal, human heart, beating in unchanging devotion beneath the folds of his ceremonial vestments.

* * *

After the foregoing, it requires no extraordinary gift of imagination to see in the life of Professor Matas much, which, even to a casual reader, suggests kinship to a Prophet of the Living God. Ever since that mystic moment when into the nostrils of his creature, Man, Jehovah blew the breath of life, there have walked among their fellows those in whom even the most degraded of the species discern something peculiar, something different, from the homogenous mass of clay puppets. Such men appear to have a divine appointment, a mission to perform. Call it by whatever term the various stages of orthodoxy and heterodoxy may prefer, it never fails of recognition and, sooner or later, its effects are felt. Pasteur called it, "the God in Man,—Enthusiasm,"—and it is, indeed, just that. A life so full of inner beauty, so busy with well-doing, so oblivious of selfish motive, so truly consecrated to human uplift, it must surely be a re-incarnation of that Love which the Seer of Patmos tells us is only another revelation of God Himself.

To us who "know Dr. Matas best and love him most" (children, too, of that sacred soil whence he sprang) his whole life seems but a symbol of those ancient chieftains whose glory is so poetically sung in sacred and secular story.

Born at the very moment when the Old South was upon the eve of a momentous and fearful experience, his parents (recent transplants from Catalona, Spain) carried

the young child back to Europe and reared him, during those first years of life, in the motherland of their adopted Louisiana. Not to estrange him from his native country, but to have him taught those things which were to fit him for citizenship in that New South wherein he was destined to play so glorious a role.

Withdrawal from the narrow limits of hereditary prejudice, restricted horizon, and sectarian boundary, seems to be the natural method of training leaders or prophets:—Joseph, in Egypt, succored his starving brethren; Moses from the palace of an alien princess, led his nation across the Red Sea and bequeathed humanity its imperishable decalogue; Daniel, escaping from the snares of political enemies, ruled wisely through four foreign dynasties and bestowed upon literature "the apocalypse of the Old Testament." So, through the ages, until, after a long period of fasting and prayer, Light shone upon the darkness of human understanding and earth witnessed the dawn of a spiritual kingdom destined to supplant the vast empires of material concern.

Returning to Louisiana shortly after her remnant of invincible heroes had wrested their altars from the sacrilege of an impious invader, young Rudolph Matas brought with him the old aspirations of a day well nigh forgot by her older sons, in their remembrance of so much recent oppression. The newcomer, doubtless, lost no opportunity for infusing fresh hopes and energies into an impoverished and suffering community. The seventies were years when the sorrows of a Lost Cause were still acute, days when,—to quote that veteran of military and educational operations, Stanford Emerson Chaillé,—"The criminal effort was made to defy nature's law of the survival of the fittest .... awful years of reconstruction, when the sole comrades men envied were those dead on the field of battle, and when to *live* was a far more grievous fate than to have *died* for Dixie."

Almost at a glance, New Orleans knew the youthful student for her own and rejoiced in his loyal sonship. Quietly, unassumingly, his gospel of health and healing made its way. The touch of the "Son of the Soul" fell gently, kindly, sympatheti-

cally upon the wounded heart of humanity, and he became what he shall ever remain,—"The best loved Surgeon of the Southland." Surgeon? Child!—for no citizen of our times has so truly established a claim to universal affection, no wrought so good a work upon us; He has sweetened the cup of bitterness with his gentle reasonableness; has given balm to the broken hearted of his own unstinted sympathy; sight to the blind, from his catholic vision; motion to the crippled, from his swift understanding,—what has he *not* done to alleviate mortal misery and to bring about the solidarity of the races of mankind?

Not at all strange is it, then, that "Those who know him best and love him most" should have gathered in those old halls where, for so many consecrated years, he has performed his sacramental duties. No wonder that there came together "all sorts and conditions of men" to do him signal honor, and that the proud city of New Orleans rose with one accord to greet its Good Physician!

Such a representative audience as had never before assembled in the Hutchinson Memorial voiced admiration and affection for this, the most distinguished son of Louisana,—unanimous in a sense of personal obligation. Rich, poor, high, lowly, all joined in one loving service and partook of a common communion. For he, the Victor, laden with the spoils of conquest acquired in cities afar from the scene of his quiet mnistry, had come back home, "unspotted from the world,"—still clad in all the simplicity of a life of love, of honest purpose, unflinching integrity, and deathless loyalty!

It is said that the true test of character is not so much poverty as prosperity. If this be true, and who doubts it?, how generously does Rudolph Matas measure up to the ideal standard. Success, honor, hosanna, affect no change in his faithful heart, his filial attitude!

We hope that it pleased him to stand that Thursday evening of Armistice Day, 1926, in the midst of the people of his native State, listening to the eulogies of, "Those who know him best and love him most." In that large audience he must have noted friends, admirers, scores of them,—all glowing with the pride of his accomplishment. He did see, and not without profound emotion, that grand old Man of Medicine, the Gladstone of Southern Gynecology, Dr. Ernest S. Lewis, sole survivor of those well beloved teachers of whom Dr. Matas spoke in touching and warm appreciation.

Dr. H. B. Gessner, close friend and first assistant throughout long years of devoted attachment, presided over the meeting and introduced the speakers, his pent-up feelings plainly showing through his dignified demeanor and well modulated tones.

Dr. Eramus D. Fenner, mellow of voice and master of English rhetoric, as well as dean of Southern orthopedics, spoke for the medical profession. His eloquent address recalled to the older members of the audienece all the personal charm and cultured oratory of his own father,—the gallant captain of Fenner's Battery, C. S. A., and for so many years the chief ornament of the Louisiana Supreme Court .

Mr. Chas. E. Dunbar, Jr., representing the citizens of New Orleans, was most happy in his incisive, brillant phrases, so full of convincing argument and as comprehensive as concise.

Last, though far from least, Miss Grace King, historian and novelist, in the name of "New Orleans, the Place and the People," presented that watch which, for all time, shall tell Dr. Matas that the heart of this city beats true to that "Son of the Soil" whose flaming scapel "neither moth nor rust shall corrupt" and whose glorious name, even while he yet lives, flashes in the constellation of immortality!

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

During the month of November there has been held one meeting of the Board of Directors, one Joint Clinical Meeting with the Charity Hospital Staff and one Scientific Meeting. The Stanford E. Chaille Oration which was to be delivered on November 8th, 1926, was postponed until a later date on account of the illness of the chosen Orator, Dr. Allan O. Whipple of New York. This date will later be announced.

Dr. Roy H. Turner and Dr. Willard Wirth were elected to Active Membership. Dr. George C. Battalora was reinstated to Active Membership.

The Joint Clinical Meeting was exceptionally well attended. At this meeting cases of interest were presented by Drs. W. J. Otis, Ralph Hopkins, J. Birney Guthrie, A. E. Fossier, H. Theodore Simon, J. A. Danna and W. A. Reed. Stenographic notes of these cases will be published in a future edition of the *Journal.*

Eleven Delegates to the Louisiana State Medical Society and their Alternates were elected at this meeting. The Delegates with their respective Alternates are as follows:

Delegates	*Alternates*
Dr. Emmett L. Irwin	Dr. W. D. Phillips
Dr. Urban Maes	Dr. Lucien LeDoux
Dr. Marcy J. Lyons	Dr. S. Hobson
Dr. L. L. Cazenavette	Dr. C. G. Cole
Dr. L. A. Fortier	Dr. Chas. F. Gelbke
Dr. F. J. Chalaron	Dr. Adolph Jacobs
Dr. J. Birney Guthrie	Dr. Fred L. Fenno
Dr. H. W. Kostmayer	Dr. John Signorelli
Dr. H. Theodore Simon	Dr. Henry Daspit
Dr. Maurice J. Gelpi	Dr. P. Graffagnino
Dr. H. B. Gessner	Dr. J. A. Danna

At the Scientific Meeting held November 22nd, 1926, papers were read and discussed as follows:

"Low or Cervical Cesarean Section"

By.....Dr. Hilliard E. Miller

Discussed by Dr. E. L. King

"The Passing of Malaria"

By.....Dr. C. C. Bass

Discussed by Dr. F. M. Johns and Dr. Chaille Jamison

"Recurrent Duodenal Obstruction." Report of Five Cases.

By.....Dr. Jos. A. Danna

Discussed by Dr. A. L. Levin

At this meeting nominations were in order for Officers for the ensuing year. The following nominations with their endorsers were received:

President—Dr. A. E. Fossier, endorsed by Drs. L. Mitchell, J. A. Henderson, J. T. Crebbin, H. E. Nelson, and T. A. Maxwell.

President—Dr. Randolph Lyons, endorsed by Drs. Chaille Jamison, H. W. E. Walther, H. W. Kostmayer and B. A. Ledbetter.

First Vice-President—Dr. John F. Dicks, endorsed by Drs. B. A. Ledbetter and Chaille Jamison.

Second Vice-President—Dr. C. Grenes Cole, endorsed by Drs. Chaille Jamison and B. A. Ledbetter.

Third Vice-President—Dr. E. L. King, endorsed by Drs. H. W. Kostmayer and Paul J. Gelpi.

Secretary—Dr. H. Theodore Simon, endorsed by Drs. Chaille Jamison and Geo. R. Herrmann.

Treasurer—Dr. John A. Lanford, endorsed by Drs. H. W. Kostmayer, Jules E. Dupuy and Paul J. Gelpi.

Librarian—Dr. Daniel N. Silverman, endorsed by Drs. Jules E. Dupuy and H. W. E. Walther.

ADDITIONAL MEMBERS BOARD OF DIRECTORS.

Dr. Leopold Mitchell—Endorsed by Drs. Monroe Wolf and T. A. Maxwell.

Dr. Maurice J. Gelpi—Endorsed by Drs. Chaille Jamison and Geo. H. Upton.

Dr. Emmett L. Irwin—Endorsed by Drs. Chaille Jamison, Jules E. Dupuy and George Upton.

Dr. Fred L. Fenno—Endorsed by Drs. H. W. Kostmayer and B. A. Ledbetter.

REPORT OF TREASURER.

October.

Actual Book Balance 9/30/26	$2,356.39
Receipts during October	455.25
Total receipts	$2,811.64
Expenditures	430.60
Actual Book Balance	$2,381.04
Outstanding checks	226.00
	$2,507.04
Receipts since Bank Balance	62.50
Bank Balance: 10/30/26	$2,544.54

REPORT OF LIBRARIN.

October

Bibliographies have been prepared during October on subjects as follows:

Bicornuate Uterus (1915-26).
Congenital Absence of Appendix.
Cranial Injuries (1924-26 O. P. M. S.).
Irradiation in Rickets (1923-date).
Lipiodol in Pulmonary Diagnosis.

These lists have been placed on file for the use of the membership.

One case of journals has been prepared and sent away for binding.

116 volumes have been added to the Library. Of these 42 were received by binding, 65 by gift, and 9 from the New Orleans Medical and Surgical Journal. A note of titles of recent date is appended.

The Library has been the recipient of book gifts during the month from Dr. I. I. Lemann and Dr. E. D. Martin, and Journals from Dr. Haidee Weeks and Dr. J. F. Oechsner.

NEW BOOKS OCTOBER, 1926.

Scudder: Treatment of Fractures. 1926.
Thomson: Diseases of Nose and Throat. 1926.
Blacker: Birth Control and the State. 1926.
Dorland: X-Ray in Embryology and Obstetrics. 1926.
Pool: Surgery of the Spleen. 1923.
Savage: Ophthalmic Neuro-Myology. 1926.
Edgar: Practice of Obstetrics. 1926.
Muse: Psychology for Nurses. 1925.
Trumper: Memoranda of Toxicology. 1925.

H. THEODORE SIMON, M. D.,
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

H. Theodore Simon, M. D., Associate Editor.

ITINERARY OF DR. FISHBEIN'S VISIT.

Monday, December 6th—
Shreveport, 4.00 P. M.—"Fads and Quackery," (Doctors only).
8:00 P. M.—(General Public).

Tuesday, December 7th—
Monroe, 11.00 A. M.—"Business Ethics and Medical Ethics."

Wednesday, December 8th—
Alexandria, 8:00 P. M.

Thursday, December 9th—
Opelousas, 2:00 P. M.—"Fads and Quackery."
Lafayette, 7.00 P. M.—"Business Ethics and Medical Ethics."

Friday, December 10th—
Baton Rouge, 10:00 A. M. — Doctors of Covington and District invited).

New Orleans, 8:00 P. M.—(General Public invited). "Twenty-five years of Medical Progress."

Our President, Dr. S. M. Blackshear, Dr. H. B. Gessner, Chairman of the Journal Committee, other officers and active members of the profession will accompany Dr. Fishbein throughout the State on this tour.

Appropriate with the above itinerary, unusual plans have been made by the respective District Societies for the reception and entertainment of their guests. The physicians in each district should plan to attend the meeting to show their appreciation of this opportunity, and to have real enjoyment as a result of their attendance to this scientific and social repast.

EIGHTH CONGRESSIONAL DISTRICT.

The Eighth District Medical Society members were entertained by the President of the Society, Dr. Kirby Roy at his Palatial Home, Mansura, Louisiana, Monday, October 25th, 1926, 8 P. M. Physicians from all over district attended and the repast served by Mrs. Roy was exquisite. Splendid music by a local orchestra was rendered during the luncheon hour, which proved ideal and added so much lustre to the occasion.

Highly scientific papers were read. The first being "Parental Care," by Dr. Marvin Cappel of Alexandria and the other on the subject of "Periodical Examinations" by Dr. J. T. Nix of New Orleans. The papers were very interesting and freely discussed by all members present.

Dr. S. J. Couvillon, Councilor for the district, mentioned the approaching visit of Dr. Morris Fishbein, Editor of the American Medical Association, who is scheduled to address the profession of the district on December 8th. The Councilor asked that 100 per cent of the District Society physicians assemble at Alexandria on that date to hear the distinguished visitor. The meeting then adjourned to meet at Alexandria on December 8th, at 7 P. M., in honor of Dr. Fishbein's visit, and at the same time to conduct the annual election of officers and payment of dues.

Extensive preparations are being made to entertain the distinguished representative of the American Medical Association.

LAFOURCHE VALLEY MEDICAL SOCIETY.

The Lafourche Valley Medical Society was the guest of the doctors of Lower Lafourche Parish in Lockport, on Wednesday, November 10th.

A splendid delegation of the New Orleans physicians were in attendance. Thirty-two doctors took part in the scientific meeting and enjoyed the banquet served at the Morvant Hotel.

RE-EXAMINATION.

The great importance of re-examination which is being stressed by the Medical Associations, including our own State Medical Society, is such that the Graduate School of Medicine of Tulane Univerity, realizing how vital it is to the health of the present as well as future generations, has enlisted the services of Dr. E. A. Hogan to lecture on this subject in connection with his work in life insurance. Dr. Hogan is a member of the faculty of the Graduate School in the Department of Medicine, and his knowledge of health statistics especially fits him for this work.

Dr. Charles J. Bloom of the Graduate School of Medicine of Tulane University, addressed the members of the LaSalle Parish Medical Society at their meeting held Thursday, November 4th, 1926, Trout, La., the subject being "Intra-Cranial Hemorrhage of the Newly Born."

Dr. Peyton R. Denman, an alumnus of Tulane University 1903, stopped off in the City returning from Montreal when he attended the sessions of the American College of Surgeons. The Journal of the State Society appreciates the visit from one of our distinguished surgeons of Houston.

WHEREAS: Our esteemed contemporary and friend Dr. J. L. Adams has departed this life, and

WHEREAS: We realize that in his death and passing we have suffered a great loss; also we appreciate the appropriateness of expressing to his family and the profession generally our love of the man, and our deep respect of his character and attainments,

THEREFORE: Be it resolved that,

This expression of our love and regard of our splendid friend be conveyed to his family; and to the profession through our Official Journal.

F. C. BENNETT, CHM.
R. W. O'DONNELL
T. E. WRIGHT
For the Ouachita Parish Medical Society.

A NEW LAW.

STATE OF LOUISIANA

ACT NO. 327 OF 1926.

House Bill No. 512 By Mr. Fernandez

AN ACT

To require physicians, surgeons, dentists, druggists or pharmacists to inscribe the name of the patient on all prescriptions and labels; and to provide a penalty for the failure to comply with the provisions of this Act.

Name of Patient to be Written on Prescription.

Section 1. Be it enacted by the Legislature of Louisiana, That all physicians, surgeons and dentists, upon writing a prescription, shall first write the name of the patient on the prescription issued, and it shall be unlawful for any druggist or pharmacist to fill any prescription unless the name of the patient shall appear thereon.

Name of patient to be Written on Label of Package.

Section. 2. That all druggists and pharmacists, upon filling any prescription, shall first write or print the name of the patient on the label which shall be securely attached to the bottle, box or package containing the medicine or drugs prescribed.

Penalty.

Section 3. That it shall be a misdemeanor for any physician, surgeon or dentist to issue a prescription without complying with the provisions of this Act; and that it shall be a misdemeanor for any druggist or pharmacist to fill any prescription without complying with the provisions of this Act; and upon conviction, shall be sentenced to serve not less than ten days nor more than thirty days, or fined not less than $5.00 nor more than $25.00, or both, in the discretion of the Court.

Section 4. That all laws or parts of laws in conflict herewith be and the same are hereby repealed.

Approved by the Governor: July 16, 1926.

A true copy:

JAMES J. BAILEY,
Secretary of State.

DECEMBER 1926 BULLETIN.

For the sake of humanity and for individual protection of every citizen of our State, the Christmas Seal Campaign of the National Tuberculosis Association, which is carried in Louisiana through its affiliated state unit, the Tuberculosis and Public Health Association of Louisiana, should have the support of every one.

The fight against tuberculosis has been most effective. During the last twenty years, the death rate has been cut in half.

Tuberculosis is one of the primary causes among diseases in producing death, lowering standards of living, endangering children in the preparation for life, and increasing the misfortune and distress which darkens family life.

The fight against tuberculosis made possible through the sale of Christmas Seals, has saved many lives and kept many families together that would otherwise be broken up.

The Tuberculosis & Public Health Association of Louisiana is endeavoring to be of great service to the community, and wage a more effective fight against this enemy in 1926, than ever before. It is entirely financed by the sale of Christmas Seals. Its continuance is only possible if those who receive the seals make their return donations. Through this annual December sale of Christmas Seals the Association has to raise sufficient funds to carry on its program for a year.

Local Units and Committees, in the parishes throughout the state, are organized for this big educational and financial drive. Thousands of posters urging support of the campaign have been sent out, and movies, slides and lectures will be used everywhere. Millions of seals are going out through the mails from the various local headquarters.

The fight against tuberculosis is a winning one. For many cenutries this disease was thought to be one that could neither be prevented nor cured. When the organized campaign against tuberculosis was begun twenty years ago, tuberculosis took 200 lives out of each 100,000; this has since been reduced to less than 100. But there is still much to be done.

The Christmas Seal Sale is one in which every man, woman and child can help; by each giving a little we will be able to raise a fund which will make possible free clinics, health lectures, the purchase of health books, and Modern Health Crusade material for our schools, and other valuable health projects in our State.

The design of this year's seal is especially attractive. These Christmas heralds are pictures, jolly little jesters, singing a merry Christmas carol, and the shield which one of them holds before him bears the double-barred cross.

We should all buy Christmas Seals. There is no place where we could put our money to greater advantage or where it is needed more. It will be in keeping with the true Christmas spirit to give freely in support of this cause.

MEDICAL SOCIETY OF MISSOURI VALLEY.

The thirty-ninth annual meeting of this association was held in Omaha, Nebraska, under the presidency of Dr. A. D. Dunn, on September 15, 16, and 17, with an attendance of nearly 500, which filled the assembly room in the New Medical Arts Building to its capacity.

The program was an excellent one, largely contributed by University teachers, and most enthusiastically received. Plans for extending the scope of the Society were adopted, including the slogan "One thousand members in 1928."

The following officers were elected for 1927:

President—T. G. Orr, M. D., Kansas City.

First Vice-President—Fred Moore, M. D., Des Moines.

Second Vice-President—J. M. Patton, M. D., Omaha.

Secretary—Charles Wood Fassett, M. D., Kansas City (re-elected).

Treasurer—O. C. Gebhart, M. D., St. Joseph (re-elected).

An Executive Board charged with the affairs of the Association and the arrangement of the program, was appointed by the President as follows: Donald Macrae, Jr., M. D., Council Bluffs; J. M. Mayhew, M. D., Lincoln; Granville Ryan, M. D. Des Moines; J. E. Summers, M. D., Omaha; P. T. Bohan, M. D., Kansas City; T. G. Orr, M. D., Kansas City.

Des Moines was selected as the place of meeting, September, 1927.

SOUTHERN MEDICAL ASSOCIATION..

The following officers have been elected for the ensuing year:

For President—Dr. J. Shelton Horsley, Richmond, Va.

For First Vice-President—Dr. Frank K. Boland, Atlanta, Ga.

For Second Vice-President—Dr. A. A. Walker, Birmingham, Ala.

For Secretary-Manager—Mr. C. D. Loranz, Birmingham, Ala., for a term of five years.

(The Editor of the Journal, Dr. M. Y. Dabney, Birmingham, Ala., was elected last year for a term of three years).

The Louisiana doctors, listed below were in attendance on the Southern Medical Association, at Atlanta, Nov 15-18, 1926.

Bastrop—R. L. Credille.

Bogalusa—J. H. Slaughter.

Clarks—S. G. Hines.

Lake Charles—S. George Kreeger.

Monroe—D. I. Hirsch, A. H. McHenry.

New Orleans—Kotz Allen, Wilmer Baker, C. C. Bass, Elizabeth Bass, J. W. Baxter, C. J. Bloom, Muir Bradburn, W. R. Buffington, H. W. Butler, Isidore Cohn, J. T. Crebbin, Oscar Dowling, H. Dupuy, Charles W. Duval, Allen Eustis, Hermann B. Gessner, J. B. Guthrie, C. S. Holbrook, S. C. Jamison, F. M. Johns, L. H. Landry, J. A. Lanford, Francis E. LeJeune, Isaac I. Lemann, A. L. Levin, R. C. Lynch, Randolph Lyons, Urban Maes, E. Denegre Martin, J. D. Martin, A. Mattes, T. A. Maxwell, R. W. Mendelson, C. J. Miller, K. E. Miller, J. H. Musser, Chapman Reynolds, E. C. Samuel, D. N. Silverman, S. K. Simon, W. A. Wagner, H. W. E. Walther, A. I. Weil.

New Roads—R. M. G. Carruth.

Plaquemine—R. R. Grant.

Shreveport—Jos. E. Knighton.

Slidell—F. R. Singleton.

Dr. C. R. Gowan, The Pines Sanitorium, Shreveport, attended the recent tuberculosis congress in Washington.

The recent death of Dr. Jesse B. Adams ("Bill," as he was familarly called) of Monroe, was a shock to his many friends thruout the state and is a great loss to the medical profession.

Dr. Elliott P. Joslin of Boston, the eminent authority on diabetes, spent one day (Nov. 14th) in New Orleans, enroute from Birmingham, Ala., to San Diego, California. Dr. Joslin was accompanied by his wife and, as this was their first visit to New Orleans, it did not take them long to realize that their stay with us was entirely too short.

Beginning with the January, 1927, issue, The Radiological Review will be published monthly instead of bi-monthly, and it will increase its number of pages from 32 to 64.

As you know, this is the only Journal devoted to the progress of X-Ray and Radium from the standpoint of the general practitioner and the specialist in branches other than Radiology

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ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Senor Alvarenga, and amounting to about Three Hundred Dollars, will be made on July 14, 1927, provided that an essay deemed by the Committee of Award to be worthy of the Prize shall have been offered.

Essays intended for competition may be upon any subject in Medicine, but cannot have been published. The essay should represent an addition to the knowledge and understanding of the subject based either upon original or literary research. They must be typewritten, and in English acceptable for publication without necessity for editing by the Committee. Any illustrations should be appropriate and correctly annotated with the text. Essays must be received by the Secretary of the College on or before May 1, 1927.

Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author.

It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award.

The Alvarenga Prize for 1926 has been awarded to Dr. P. S. Pelouze and Dr. Frederick S. Schofield, Philadelphia, for his essay entitled "The Gamophage."

JOHN H. GIRVIN, Secretary,

19 South 22d Street, Philadelphia, Pa., U. S. A.

UNITED STATES CIVIL SERVICE EXAMINATION.

The United States Civil Service Commission announces the following open competitive examination:

JUNIOR MEDICAL OFFICER (INTERNE).

Applications for junior medical officer (interne) must be on file at Washington, D. C., not later than December 30. The examination is to fill a vacancy in the United States Veterans' Bureau Hospital, Camp Custer, Michigan, and vacancies in positions requiring similar qualifications.

The entrance salary is $1,860 to $2,400 a year without allowances, or $1,260 to $1,860 a year with quarters, subsistence, and laundry, the entrance salary within the range stated depending upon the qualifications of the appointee as shown in the examination and the duty to which assigned. To those whose services are satisfactory, and in the discretion of the appointing officer, there may be granted a salary increase of not more than $600 a year at the end of the six months' probationary period required by the civil service rules, and a the end of eighteen months the salary of $3,300 a year, without allowances, may be paid in the discretion of the appointing officer and subject to the existence of vacancies.

The duties, under immediate supervision, are to admit patients, take histories, make physical and mental examinations and record findings; to make ward rounds of inspection, note charts, record observations; to prescribe for minor ailments or for acute or emergency cases and to dispense medicine in emergency; to perform minor surgical operations and to assist at major operations and in redressing; to administer anaesthetics; to make routine laboratory tests and analyses; to assist at out-patient clinics in dressing and ir administering vaccines; to keep records, make up case histories, answer correspondence relating to patients and compile statistics requiring medical training.

Competitors will not be required to report for examination at any place, but will be rated on their education, training, and experience.

Full information and application blanks may by obtained from the United States Civil Service

Commission, Washington, D. C., or the secretary of the board of U. S. civil-service examiners at the post office or customhouse in any city.

SPECIALIST IN PATHOLOGY NEEDED AT KNOXVILLE, IOWA, HOSPITAL.

The United States Civil Service Commission states that there is a vacancy in a position of specialist in pathology at the Veterans' Bureau Hospital at Knoxville, Iowa, and that applications are being received for the position.

The entrance salary is $3,800 a year. Promotion to higher grades may be made in accordance with the civil service rules.

Full information and application blanks may be obtained from the United States Civil Serv. ice Commission, Washington, D. C.

THE WORLD'S CHILDREN.

Weekly Notes on Child Welfare Topics Compiled by the U. S. Children's Bureau.

Child-Health Examinations, Chicago—148,000 children in the schools of Chicago were examined last year through the work of the Chicago Municipal Tuberculosis Sanitarium. 100,000 of the children were in kindergarten or first grade. 110,000 were found with defects serious neough to need treatment, and 43 percent of these received the necessary corrections of defects.

Food and Teeth—Nutrition is the most important factor in healthy teeth, Dr. Harold H. Mitchell, Director of School Hygiene, Fall, River, Mass., points out. Dr. Mitchell states that prophylatic and dental repair work will be necessary for a long time to come, if not always, but that good nutrition comes first in the dental program. He describes a week's campaign in Fall River which aroused the interest of teachers and parents in dental hygiene. Dentists, drug stores, newspapers, and health officials co-operated in the campaign.

Pan American Child Congress—The fifth Pan American Child Congress will be held in Havana, Cuba next February and will include an international child-welfare exposition. The Government of the United States has been invited to participate. The Congress will be divided into six sections, medicine, hygiene, sociology, education, psychology, and legislation.

Health Organization, League of Nations—The first annual report of the Health Organization of the League of Nations appeared in July, 1926. This body is authorized to "take steps in matters of international concern for the prevention and control of disease." It consists of an advisory council correlated with the International Health Office in Paris, a permanent health committee of 20 members, and a health section which forms an integral part of the secretariat of the League. The health committee is the active body and is responsible for the technical direction of the health section.

The first task of the health organization was to collect and tabulate the official records of epidemic diseases from all countries where they are kept, and it expended much labor in securing uniformity and promptitude. Four commissions are engaged on such subjects as certification of causes of death, age and sex grouping, definition of stillbirth, and international standards for comparision of mortality rates. Bilateral sanitary conventions between adjoining countries also were established. Eleven special inquiry commissions studied the subjects of public-health training, malaria, cancer, tuberculosis, anthrax, smallpox, sleeping sickness, opium sera, and biological products. Eight interchanges of public-health personnel were brought about during the year.

POPULAR FOLDERS OF CHILD WELFARE.

The Children's Bureau of the United States Department of Labor is engaged in the publication of a series of folders which will give in popular form the results of the latest research in various phases of child welfare.

Four folders in this series have recently come from the press. The first is entitled "Sunlight for Babies," and describes the technique of giving the baby daily sunbaths. The second folder is called "Breast Feeding," and deals with the question of diet for the nursing and expectant mother, and with methods through which breast feeding may be made possible in most cases.

The third folder, "Community Care of Dependent, Delinquent, and Handicapped Children," outlines in simple form the methods through which communities can assist children in need of special care.

"From School to Work," the fourth folder, tells the story of a "typical" American boy and girl living in an imaginary community which trains all its children for the work they are best able to do, and then helps them wisely to select the right job. Vocational counseling, tryout shops, trade schools, scholarships, continuation schools, and efficient administration of child-labor laws are stressed in this folder.

The complete list of folders published so far by the bureau follows:

Folder No. 1—Minimum Standards of Prenatal Care.

Folder No. 2—Backyard Playgrounds.

Folder No. 3—Why Drink Milk.

Folder No. 4—What Builds Babies.

Folder No. 5—Sunlight for Babies.

Folder No. 6—From School to Work.

Folder No. 7—Community Care of Dependent, Delinquent, and Handicapped Children.

Folder No. 8—Breast Feeding.

Single copies may be had free upon request. Prices in quantity will also be given upon request. All the folders are illustrated.

SUPRREME COURT UPHOLDS AMERICAN DRUGS.

A decision of the highest importance to every physician, pharmacist, drug manufacturer and, in fact, every user of drugs in the United States was rendered by the Supreme Court of the United States on October 11, 1926, when this highest tribunal of the Nation declared that the chemical Foundation had been acting legally and properly in the purchase of the foreign drug and chemical patents, during the War, and licensing American Manufacturers to produce these essential substances in this country.

The sale of the German patents to the Chemical Foundation took place during President Wilson's administration and had, without doubt, a distinct influence upon the outcome of the War, because this transfer permitted American concerns to begin at once the production of various drugs and chemicals which had, theretofore been made only in Germany, and whose importation ceased with our entry into the War.

President Harding, apparently laboring under some misapprehension as to the purposes and functions of the Chemical Foundation directed that suit be brought by the Government to set aside the sale of these patents to the Foundation.

The case was first tried in the Federal District Court of Wilmington, Del., and resulted, after weeks of evidence taking, in a finding against the Government on all points.

The case was appealed to the Circuit Court, which upheld the decision of the District Court in every particular.

A final appeal carried the question to the Supreme Court of the United States, where evidence was heard more than a year ago. The long delay in rendering a decision has afforded time for mature consideration. The Court has decided unanimously that the sale to the Chemical Foundation was valid and legal and that the Foundation has made no improper use of the powers which it thus acquired.

This decision is a momentous one for everyone who has anything to do with drugs and chemicals in any way whatever.

To the physician it means that he will have a steady and regular supply of reliable drugs, of American manufacturers, which can never again be upset or cut off by the vicissitudes of war. The same considerations apply to the pharmacists. Among the vitally necessary drugs affected may be mentioned the arsphenamines, cinchophen, barbital, the flavines, procaine and a host of others.

To the drug manufacturer, who has invested thousands of dollars in apparatus for the manufacture of drugs and chemicals under the Foundation's licenses, it means relief from a certain degree of anxiety (though the outcome of the case could scarcely have been in doubt) and a tremendous inspiration to further investigations looking to the production of more and better drugs and chemicals for America.

To the nation at large, it means that reliable medicines will continue to be sold at reasonable prices; and, more or less indirectly, that the dye industry of America which is now in a flourishing condition, thanks to the Chemical Foundation, will be available for government uses should we become involved in another war.

Nor are medicine and pharmacy the only lines of endeavor affected by this momentous decision. The steel and packing industry and many others will be vastly benefitted by the freedom of chemical investigation and activity which is now assured them.

MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

J. S. Ullman, M. D., Associate Editor.

ADDRESS OF FRATERNAL DELEGATE FROM LOUISIANA TO MISSISSIPPI STATE MEDICAL ASSOCIATION.*

The Chairman: We have with us a fraternal delegate from the Louisiana Medical Association, and we will be glad to hear from him at this time—Dr. John Smyth of New Orleans.

Dr. John Smyth (New Orleans): Some of us have just returned from the meeting of the Louisiana State Medical Society at Monroe, and I look forward to a most interesting and profitable meeting here. I cannot tell you how glad I am to be with you and to bring to you further assurances of our deep appreciation of the many ties which unite the medical fraternity of Mississippi with that of Louisiana. Many of these ties are the common ties which unite the sons of this Southland, sons of fathers who stood for a common cause, and these sons now working with a common purpose have, many of them, a common alma mater. Three hundred of the physicians and surgeons now practicing in your State are graduates of the medical department of Tulane University, and since the foundation of our beloved School of Medicine in 1834, 1082 of her alumni have been graduated from the State of Mississippi. Again, these two States have a common journal, the New Orleans Medical and Surgical Journal, which is the official organ of the Mississippi State Medical Association, the Louisiana State Medical Society, and the Orleans Parish Medical Society. Now with common destinies, common feelings, common hopes, and common aspirations, we are divided only by a boundary and a name.

Mississippi has always contributed to her people, to the nation, and to the world. The President of the Confederacy, looking for a home in which to spend the declining years of his eventful life, found it upon the balmy southern shores of the State of Mississippi. Professor Dr. Stanford Emerson Chaille, so long dean at Tulane, and whose memory now hovers as a halo over the medical department of that university, was born in the State of Mississippi. The first president of the American College of Surgeons, Dr. J. M. T. Finney of Baltimore, was born in Natchez, Mississippi.

Mississippi, including the members of your profession, sent her quota of officers and soldiers to the great World War. Many of these returned with honors, distinctions, and decorations, while many were called upon to make the supreme sacrifice and received only a soldier's reward. To the mothers and fathers and loved ones of those who now rest in the cemetery at Arlington, may we proffer the hope and offer the prayer that as the sacred monument of Washington and the towering dome of our nation's capitol shall cast their shadows across the Potomac, may they ever a silent vigil keep while tear-dimmed eyes and aching hearts will watch and guard their sleep.

The late Sargent Smith Prentiss, silver-tongued orator of your great State, in his sorrow and humiliation over the loss of his seat in Congress, said: "Pluck from the nation's banner the star representing the State of Mississippi, but let the stripe ever remain as an emblem of her degradation."

Ladies and gentlemen, this star was not plucked from the nation's banner, but has remained to shed its soft and gentle light upon the activities, achievements and accomplishments of this association; and the stripe has remained—emblematic of the band that binds you to your sister association which I have the honor and privilege to represent here today, and with the increasing glory and brightness of that star and the ever-increasing strength of that band has grown the power, the influence and the usefulness of the Medical Association of the State of Mississippi.

*The Journal regrets the delay in publishing this part of the Transactions of the Mississippi House of Delegates, but due to some oversight it was only recently sent to the Editor.

The Delta Medical Society met at Indianola on October 13 and was entertained by the Sunflower county doctors. The program was as follows:

"Artificial Infant Feeding," U. S. Wasson, Moorhead.

"Diagnosis and Management of Pregnancy," C. W. Patterson, Rosedale.

"Treatment of Cataract," W. A. Stevens, Greenville (read by L. C. Davis in Dr. Stevens' absence).

"Diabetes Mellitus," G. W. F. Rembert, Jackson.

"Ectopic Pregnancy," L. B. Otken, Greenwood.

The following officers were elected for 1927:

President—T. W. Wilson, Arcola.

Vice-Presidents and Delegates—Bolivar county, W. C. Howell, W. M. Merritt; Leflore county, J. B. Bates, T. B. Hollomon; Sunflower county, J. W. Lucas, U. S. Wasson; Washington county, C. P.

Thompson, A. G. Payne; Humphreys county, G. M. Barnes, J. C. Higdon.

The next meeting of this society will be held in Greenville.

Central Medical Society held its regular meeting one week later than the usual date on account of the Mississippi State Fair.

Dr. J. Crisler and Dr. G. W. F. Rembert attended the Inter-Continental Clinics at Cleveland, Ohio, in October.

About seventy per cent of the medical profession from Jackson attended the Southern Medical Association in Atlanta.

Dr. May F. Jones of the State Tuberculosis Sanatorium addressed the Mississippi Tuberculosis Association at the meeting on October twentieth. This meeting was for the purpose of outlining the Christmas seals selling and other State association work.

Dr. Henry Boswell has returned from the Tuberculosis Conference in Washington.

The Sanatorium Sunshine Club held a bazaar in Jackson the first part of December. A unique feature in connection with this bazaar was a collection of autographed books donated by authors of note. The following authors were among those who sent volumns to the Sunshine Club: Edward Bok, H. L. Mencken, Henry Van Dyke, Joseph Hergesheimer, Ben Ames Williams, Irvin S. Cobb, Ring Lardener, Mary Johnston, Rupert Hughes, Ellen Glasgow, John Sharp Williams, George Anthony Zeller, William Percy, E. L. Lowe, Mrs. Dunbar Rowland, Louis Jiggit, and others. A valuable book was sent by the son of the late Francis Hodgson Burnett containing a large sheet of foolscap with both sides entirely covered with a book preface written in longhand by Mrs. Burnett.

Checks were sent to the club from many sources, among them being a generous check from Mme. Amelita Galli Curci.

Six hundred and ninety-one dollars was the sum realized from fourteen baseballs inscribed and contributed by nationally known baseball man. These balls were sold at auction during the world's series games.

The Clarksdale and Six County Medical Society held its fall meeting at the Elks' Club, Clarksdale, on Wednesday, November tenth. The following program was rendered:

1. Papers, S. T. Wells, Duncan, and T. G. Hughes, Clarksdale.

2. "The Common Cold," J. A. Slack, Friars Point.

3. "The Prevention of Deformity by the General Practitioner," Willis C. Campbell, Memphis, Tenn.

4. "Irregular Practice," J. B. Mitchell, Clarksdale.

5. "Conservative versus Radical Treatment of Paranasal Sinusitis," W. L. Howard, Memphis, Tenn.

6. "The Acute Abdomen," J. L. McGhee, Memphis, Tenn.

After the program a banquet was served at the Yellow Lantern in the Elks' Club.

Dr. Theodore Borroum, of Corinth, Miss., died suddenly on October 17, 1926. His death came as a shock to the entire community.

He was fifty-two years of age. He was a B. S. graduate of the University of Mississippi, a member of the Mississipppi State Medical Association, and an ex-member of the Mississippi State Board of Health.

The North East Mississippi Medical Society will meet in Tupelo on December 21. The dentists, pharmacists, and trained nurses have been invited to meet with them and take part on the program. The chief aim of this meeting is to bring about a better understanding, a closer co-operation and more efficient team work among the professions in order to give better service to their clientele.

Dr. H. M. R. Faser, Dean of Pharmacy of the University of Mississippi, has already promised to take part on the program and Dr. C. C. Bass, dean of Tulane Medical School, is expected to address the societies.

The annual meeting of the Mississippi Tuberculosis Association was held in Jackson on Wednesday, November 20, in the parish house of St. Andrew's Episcopal Church.

Dr. Boswell, superintendent of the Mississippi Tuberculosis Sanatorium at Magee, discussed the meeting of the National Association and presented a number of new ideas.

Dr. J. F. Underwood, state health officer, discussed the significance of child welfare in public health programs.

Miss Mary Osburn, supervisor of public health nursing for the Mississippi State Board of Health, gave a talk on "The Public Health Nurse."

Dr. A. L. Emerson presented a standard program for a county tuberculosis association.

An interesting explanation of the examination of school children in the city of Jackson was given by Dr. J. B. Black, director of the Hinds County Health Unit.

SOUTHERN MEDICAL ASSOCIATION.

The following doctors from Mississippi attended the recent meeting of the Southern Medical Association, in Atlanta:

Aberdeen—Wm. J. Coleman.

Agricultural College—C. B. Mitchell.

Alligator—J. L. Nichols.

Bay St. Louis—C. L. Horton, C. M. Shipp.

Belmont—K. F. McRae.

Biloxi—Wm. W. Eley, T. H. D. Griffitts. B. Z. Welch.

Booneville—L. L. McDougal, W. H. Sutherland.
Carthage—W. S. Martin.
Coahoma—A. W. Rhyne.
Columbia—J. Gould Gardner.
Columbus—W. C. Brewer, P. K. Fite.
Como—A. P. Alexander.
Corinth—C. W. Norwood.
Crystal Springs—F. F. Smith.
Dixon—F. L. Brantley, Albert A. Majure.
D'Lo—M. L. Flynt.
Dundee—H. G. Johnson.
Greenville—A. G. Payne.
Greenwood—M. A. Barbour.

Gulfport—D. J. Williams, C. C. Jones, Chas. A. McWilliams.

Hattiesburg—C. C. Buchanan, Fern Champenois, W. W. Crawford, W. W. Hickman, J. F. Pou, Jr.

Houston—V. B. Philpot.

Indianola—C. J. Mancill.

Ittabena—L. H. Hightower.

Jackson—N. C. Womack, George E. Adkins, C. C. Applewhite, F. J. Underwood, James B. Black, Harvey F. Garrison, H. R. Hays, S. H. McLean, George Parker.

Laurel—R. H. Crawford.
Long Beach—W. A. Dearman.
Lumberton—George D. Mason, L. C. Rouse.
McCandy—E. K. Guinn.
Marion—R. E. L. Fowler.
Meridian—R. L. Turner.
Merigold—R. A. Haggard.
Natchez—W. H. Aikman, L. S. Gaudet.
Noxapater—T. F. Kilpatrick.
Oxford—J. C. Culley.
Pass Christian—D. G. Rafferty, Robert A. Strong.
Picayune—V. B. Martin.
Poplarville—J. W. Moody, R. R. Roberts.
Purvis—L. L. Polk.
Richton—Jos. E. Green, J. H. Newcomb.
Taylorsville—J. W. Stringer.
Tupelo—L. C. Feemster.
Union—Z. C. Hagan.
Vicksburg—Ike Knox.
West Point—F. C. Spalding.
Winona—T. W. Holmes.

BOOK REVIEWS

Art and Practice of Medical Writing: By George H. Simmons, M. D. and Morris Fishbein, M. D. Chicago, American Medical Association. 1925.

This little manual of 163 pages is the style and code book of the American Medical Asociation as used in its publications, notable for excellence of content and form. The various sections were published serially in the Journal of the American Medical Association, previous to their publication in book form. The volume comprises a valuable handbook for every medical writer.

Chapter headings indicate the scope:—An Acceptable Paper; Style; Subject and Material; Construction of the Manuscript; Words; Spelling; Capitalization; Abbreviations; Numbers and Figures; Prescriptions; Securing a Bibliography; Preparation of the Manuscript; Illustrations; Charts and Tables; Revision; Proofreading.

Dr. Simmons is Editor and General Manager Emeritus of the American Medical Association, and Dr. Fishbein is Editor of the Journal of the American Medical Association. The Journal can unqualifiedly recommend to its contributors, the study and use of this excellent manual of authorship.

MARY LOUISE MARSHALL.

Therapeutics, Materia Medica and Pharmacy: By Sam'l O. L. Potter. Fourteenth edition, revised by R. J. E. Scott. Philadelphia, P. Blakiston's Son & Co. 1926.

The fourteenth edition of any book does not require extended comment nor review. A book of this age has stood the test of time and the previous editions have proved satisfactory to a large number of physicians. The present edition shows no essential change from the principles adopted in the early editions. It presents in a brief and concise form data concerning various drugs. In addition to that, it contains about 120 pages on special therapeutics. This section contains a brief summary of the drugs that are used in the treatment of all diseases and disorders, and of many symptoms. The treatment necessarily is so short that it would be of little service except for suggestions for more extensive information and study. In addition to these sections, the book contains a large number of tables, printed regulations and so on which are of value for reference. Despite the fact that several pages are devoted to equivalent weights and measures in the apothecary and metric systems, the modern metric method has not been employed anywhere in the book, more's the pity.

J. H. MUSSER, M. D.

Roentgen Interpretations By George W. Holmes, M. D. and Howard E. Ruggles, M. D. Third Ed. Illustrated. Philadelphia and New York, Lea & Febiger. 1926.

This work of Holmes and Ruggles is well known to all Roentgenologists as a valuable and instructive book; it is now in its third edition.

The purpose of this book is to cover the essentials in roentgen-ray diagnosis, and it does this better than any similar work written in the English language. It contains more essential matter within its 300 pages, than many other books of larger size.

This book cannot be too highly recommended to the beginners and recent workers in roentgenology, as a splendid book of valuable information.

LEON J. MENVILLE, M. D.

Gould's Medical Dictionary: By George M. Gould, A. M., M. D., edited by R. J. E. Scott, M. A., B. C. L., M. D. Philadelphia, P. Blakiston's Son & Co. 1926.

The British Medical Journal says of the author, "Dr. George M. Gould is the Johnson of medical lexicography. His various dictionaries adapted to the needs of the student, practitioner, and scholar respectively, have had a commercial success that of itself is sufficient to prove their practical usefulness."

Important features noted in the dictionary are the clear bold type, the pictures, the biographical detail, and the many abbreviations now in use. It contains 76,000 words, about 5,000 of which are entirely new in this edition. Pronunciation is clearly shown by the phonetic arrangement of letters.

The dictionary is most usable and should prove itself a ready tool for the busy practitioner.

MARY LOUISE MARSHALL.

Osler's Modern Medicine: By Sir William Osler, Bart, M. D., F. R. S. 3d ed. rev. & ed. by Thos. McCrae, M. D., and E. H. Funk, M. D. Philadelphia and New York, Lea & Febiger. 1926.

V. 3—Devoted to Diseases of Metabolism and Diseases of the Digestive System.

This volume, like the two preceding volumes, has been completely revised and the subject matter made to conform with modern ideas.

The articles on Metabolism, Diabetes and other Metabolic disturbances are not only interesting but

instructive. The section devoted to diseases of the Digestive System covers the subject very thoroughly and will be found to be interesting reading.

J. HOLMES SMITH, JR., M. D.

Manual of Proctology: By T. Chittenden Hill, M. D. Philadelphia and New York, Lea & Febiger. 1926.

This second edition is a comprehensive revision of Hill's useful book. Written in a clear and concise way, and amply illustrated, it is a thoroughly practical work on Diseases of the Rectum.

MAURICE LESCALE, M. D.

The X-Ray in Embryology and Obstetrics: By W. A. Newman Dorland, A. M., M. D., F. A. C. S., and Maximilian John Hubeny, M. D., F. A. C. R., F. A. C. P. Saint Paul, Minn. Bruce Publishing Company. 1926.

This extremely interesting work covers its particular field thoroughly. Embryonic development is considered in detail, particularly the development of the skeleton, and the various anomalies are discussed. The methods which have been devised for the X-ray measurement of the diameters of the female pelvis (especially those of Chamberlain and Newell and of Thoms) are described, and different types of pelvic deformity are depicted.

The section on the X-ray diagnosis of normal uterine pregnancy is short but thorough. Abnormal positions, fetal monstrosities, and multiple pregnancies are now routinely diagnosed antepartum by the Roentgen ray, and interesting chapters on these topics are presented. The authors do not consider that the X-ray demonstration of the overriding of the cranial bones (Spaulding, Horner) is pathognomonic of intrauterine fetal death.

In considering the medico-legal aspects of obstetric radiology, the author's cite the failure of a Franch surgeon to employ the X-ray as an aid in the differential diagnosis between pregnancy and fibroid, which omission led to a succesful suit for damages (*l'affaire d'Evreux*). They hold that the operator "was negligent in failing to resort to every possible test in the presence of a diagnostic uncertainty."

A very timely chapter on the etiologic significance of the X-ray in teratogenesis is included. Now that so many fibroids are being treated by the ray, the effect of such treatment on an unsuspected pregnancy associated with a fibroid is a matter that deserves attention.

The book is of course profusely illustrated, especially the chapter on teratologic radiology. It is a pioneer effort in its particular field, and is a worthy exemplification of the modern tendency toward correlation of the various branches of medicine.

E. L. KING, M. D.

Diseases of the Nose and Throat: By Sir St. Clair Thomson, M. D., F. R. C. P., Laud. F. R. C. S., Eng. 3d ed. New York, D. Appleton & Co. 1926.

This book first appeared in 1911 and was founded on a basis of physiology and surgical anatomy, which basis of presentation has been continued in the third edition. The chapter on embryology, in which various congenital deformities are explained, is very interesting. In discussing cocaine the author says "there is no department of practice in which the services of cocaine are so often required as in rhinology and laryngology." Remembering Loeb's recent work in this country investigating deaths following minor operative work in this specialty, his remarks will be found valuable and timely.

The chapters on the larynx are splendid and the illustrations which are so helpful to the student of laryngeal conditions, are excellent.

The author quotes:

"In this work, when it shall be found that much is omitted, let it not be forgotten that much likewise is performed."—Samuel Johnson, LL. D., Preface to his Dictionary of the English Language, 1755.

The much that likewise has beeen performed will be found exceedingly valuable to those of us interested in diseases of the nose and throat.

H. KEARNEY, M. D.

The Peaks of Medical History: An Outline of the Evolution of Medicine for the Use of Medical Students and Practitioners: By Charles L. Dana, A. M., M. D., LL.D. Illus. New York, Paul B. Hoeber. 1926.

The house of Hoeber again provides us with a precious medico-literary gem, in Professor Dana's "Peaks." The presentation, as the title implies, is very unusual and justifies its means by fulfilling nicely the practitioner's and student's sorely needed disideration, viz., a short yet moderately comprehensive history which can be consumed and digested at one sitting.

Because of the author's massive erudition, one might expect from his hand a detailed dry-as-dust product, but instead the reader finds a book of unusual charm, replete with that rarest of qualities in a history—humor. Add to this a succession of engrossing and instructive plates, many from inaccessible sources, and one cannot but feel that this volume is an ideal small history of medicine.

M. MALLOWITZ, M. D.

Defective Memory and Absentmindedness: Their Treatment: Arnold Lorand, M. D. Philadelphia, F. A. Davis Co. 1926.

This book is written in a very pleasing style and shows the author to be well versed in history and literature and a wonderful master of many languages—exemplifying in himself what a well-trained memory can accomplish. His digression to describe the Nomad brewing his coffee on the Arabian plains appeals particularly to the reader on account of the vividness of his description.

Of course, the most practical and from the medical side the most interesting part of the book is the chapter on how to acquire and retain a good memory, which is good and contains many valuable hints; but the most captivating section is the one explaining the difference between conscious and subconscious memory. Here the author excels himself and from that distinction builds up his method.

After mental pictures have been admitted by the will through the gateway of the conscious mind, they are stored in the subconscious mind as permanently stored up pictures which may be recalled at will or may rise up to the surface when the mind is relaxed. By this means the author explains the doctor's personality and the remarkable influence which he may at times exercise over his patient.

In the chapter on insomnia of brain workers, the reader may find valuable suggestions which are simple and very practical. The author objects to hypnotics and wisely recommends rest, salicylates and valerian.

Much space is devoted to the best method of handling diseases which cause damage to memory. First on the list is arterio-sclerosis, which by diminishing the blood supply disables instead of fortifies the brain cell; tobacco, alcohol and syphilis here work the greatest harm, the author's theory of the efficiency of iodids in these instances is that the viscuosity of the blood is lessened. He advocates atophan as a great help for memory in the arthritics. The section on paresis is masterful but its chief feature is the clear description enabling the reader to recognize the disease in its incipiency before it has damaged the memory.

According to the author, an absentminded man may yet be gifted with a good memory, but in a forgetful one the function is failing.

The *key note* of the *treatment* is *attention, fixation, impression.* Many valuable hints are given: repetition, association, clarity of impressions, concentration, avoidance of narcotics, performing all hard work in the morning and reviewing on retiring (this transfer the work to the subconscious mind which never sleeps). Thyroid extract is recommended and a liberal but not an excessive use of coffee is advised as a useful help to memory. He also recommends strict attention to growing children at school, whose diet should be plentiful so that the brain cells may function and develop in a stable way.

In subsequent editions—which this book is certain to require—the allusion to religious subjects and characters may be left out with advantage and the treatment in some parts may profitably be condensed but the book as a whole is a very valuable addition to a doctor's collection.

NARCISSE THIBERGE, M. D.

La Grippe: Clinical—Prophylactic—Treatment: By Dr. Pierre Lereboullet. Ten illustrations. Paris, J. B. Bailliere et Fils. 1926.

Professor Lereboullet makes no attempt in this monograph to write a complete exposition of the subject nor to analyze the literature. He presents a study of influenza as he saw it in the great pandemic of 1918 and in the isolated cases that have occurred since that time. He embodies a great deal of useful and practical information on diagnosis and particularly on treatment. He is no therapeutic nihilist and does not believe that the disease should be allowed to run its course, with the treatment directed only to the alleviation of symptoms.

FRANCIS M. MUNSON, M. D.

PUBLICATIONS RECEIVED.

D. Appleton and Company, New York and London: "The Diseases of Infancy and Childhood," by L. Emmett Holt, M. D., Sc. D., LL. D., and John Howland, A. M., M. D.

The MacMillan Company, New York: "Cavernous Sinus Thrombophlebitis," by Wells P. Eagleton, M. D.

Year Book Publishers, Chicago: "The Practical Medicine Series," 1926, General editorial charge of Dr. Charles L. Mix.

Miscellaneous: "The Medical Dept. of the U. S. Army in the World War," Vol. XIV, Medical Aspects of Gas Warfare. "Life Insurance Medicine," by Members of the Medical Dept. of New England Mutual Life Insurance Company, Vol. I. "The Ophthalmic Year Book," Vol. XXII, edited by William H. Crisp. "The Scientific Basis of Chemotherapy," by Iwan I. Ostromislensky, Ph. D., M. D., Part I. "Les Syndromes D'Aortite Posterieure," by Ch. Laubry, A. Mougeot and J. Walser. "La Tuberculose Pulmonaire Latente, Pretuberculose, Sommets Suspects."